FINAL

COMPLETION REPORT
FORMER BREMERTON MGP SITE
INCIDENT ACTION AND TIME CRITICAL REMOVAL ACTION

BGWSF
1.9.9

Prepared for

U.S. Coast Guard Sector Puget Sound

Incident Management Division

On behalf of

Cascade Natural Gas Corporation

Prepared by

Anchor QEA, LLC

January 2011

FINAL COMPLETION REPORT
FORMER BREMERTON MGP SITE
INCIDENT ACTION
AND TIME CRITICAL REMOVAL ACTION

Prepared for

U.S. Coast Guard Sector Puget Sound
Incident Management Division
1519 Alaskan Way S. Building 4
Seattle, Washington 98134

On behalf of

Cascade Natural Gas Corporation
8113 West Grandridge Boulevard
Kennewick, Washington 99336-7166

Prepared by

Anchor QEA, LLC
1423 Third Avenue Suite 300
Seattle, Washington 98101

January 2011

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1 INTRODUCTION

Cascade Natural Gas Corporation (Cascade Natural Gas) has completed an Incident Action and Time Critical Removal Action (Action) at the location of the former Bremerton manufactured gas plant (MGP) in Bremerton, Washington (Figure 1). The Action was completed as specified in the *Final Work Plan: Former Bremerton MGP Site, Incident Action and Time Critical Removal Action* (Work Plan; Anchor QEA and Aspect 2010), which was approved by the U.S. Coast Guard (USCG) and the Unified Command in November 2010. The Work Plan is included as Appendix A.

This Completion Report discusses the performance and results of the Action.

1.1 Site Description and Background

This section describes the Site, defined as the area where the MGP was formerly situated plus all areas affected by contamination originating from the former MGP, whether in the upland or shoreline environments; historical and current uses of the Site; and the recent discovery of and response to a discharge pipe near the former MGP.

1.1.1 *Historical and Current Uses*

The former Bremerton MGP was located on the south shore of Port Washington Narrows in Bremerton, Washington, between Thompson and Pennsylvania Avenues (Figure 1). The MGP produced gas for lighting and heating through coal gasification from approximately 1930 to the mid-1950s and through blending of propane and air from the mid-1950s to 1963. The MGP structures were removed between 1963 and the early 1970s.

The former Bremerton MGP was located on portions of three existing properties: two currently owned by the McConkey Family Trust (McConkey Property) and the third currently owned by Natacha Sesko (Sesko Property). The boundaries of the former Bremerton MGP are shown on Figure 1.

After the MGP was dismantled, the McConkey Property and Sesko Property were used for industrial purposes, including metal fabrication, concrete forming, and boat repair. The majority of the McConkey Property is currently vacant and unused. A small, currently-empty structure spans the southern edge of the McConkey Property. The Sesko Property is also currently vacant and unused. Land use in the immediate vicinity of the former MGP is currently industrial and hght commercial.

Three separate petroletun storage and distribution facilities were formerly or are currently present in the immediate vicinity of the former MGP:

1. A facility located on the Sesko Property, in operation between approximately the early to mid-1940s to approximately 1993
2. A facility located southwest of the former MGP, in operation between approximately 1942 and 1992
3. A facility located to the east of the Sesko Property, across Pennsylvania Avenue, which is still active and commenced operations in the early to mid-1940s

Historically, petroleum products were dehvered to all three fuel facihties by barge. Three separate docks were used for product dehvery over the years. Use of the docks was consohdated over time, and two or more of the fuel facilities shared a single dock in later years.

The former MGP, the fuel facilities, and other former and current operations in the vicinity of the Site have been the subject of multiple environmental studies. A hst of studies focused primarily on the former MGP includes:

- Inspection Field Notes and Lab Report from initial investigation inspection (Ecology 1995)
- *Targeted Brownfields Assessment Report, Old Bremerton Gas Works – McConkey Properties* (Techlaw 2006)
- *Preliminary Upland Assessment Report, McConkey/Sesko Brownfields Site* (GeoEngineers 2007)
- *Historical Characterization and Data Gaps, Old Bremerton Gasworks Property 1725 Pennsylvania Avenue* (Hart Crowser 2007)
- *Final Bremerton Gasworks Targeted Brownfields Assessment Report* (Ecology and Environment 2009)

Complete references for these studies are included in Section 5.

1.1.2 Discovery of and Response to Pipe

On August 20, 2010, the Kitsap County Health District (KCHD) observed intermittent sheens on surface water of Port Washington Narrows near the former MGP. Further investigation by KCHD on October 4, 2010, identified a 12-inch concrete pipe (Pipe) in the intertidal area that appeared to be discharging product to marine waters. KCHD reported the finding to the U.S. Environmental Protection Agency (EPA). EPA relayed the finding to USCG on October 5, 2010, because the Pipe was within USCG's area of responsibihty (EPA 2010).

USCG mobilized to the Site on October 6, 2010. USCG took immediate action to contain the sheen by installing a containment system as of October 10, 2010, and conducting frequent monitoring of Site conditions. On October 16, 2010, USCG commenced activities to mitigate the apparent discharge from the Pipe. The activities included breaking of a 4-foot section of the Pipe with a hydrauhc hammer, plugging the Pipe-end in that area, and placing hydraulic cement over the temporary plug. These activities were implemented by an emergency response contractor working at the direction of USCG.

EPA, in coordination with USCG and in conjtmction with the response activities, collected surface sediment samples for analysis of polycychc aromatic hydrocarbons (PAHs). The sample locations and sample results of this analysis and the results of sediment samples collected in August 2009 (Ecology and Environment) are presented on Figure 2. The Washington State Department of Ecology (Ecology) analyzed a sample of material collected near the Pipe by KCHD on September 24, 2010, only for hydrocarbon identification by HC-ID (Appendix B). The sample was identified by the laboratory as a "coal-tar creosote" type of product.

EPA coliected a sample of material from inside the Pipe on October 5, 2010, and only analyzed it for PAHs. Complete laboratory results for all samples collected by EPA in 2010 are included in Appendix C. Laboratory results for all other samples can be fotmd in the enviromnental studies listed in Section 1.1.1.

The USCG established a Unified Command to assist with the response activities. The Unified Command initially included representatives of USCG, EPA, Ecology, Washington Department of Natural Resotrrces (DNR), and KCHD.

On October 18, 2010, Cascade Natural Gas first learned of the response activities at the Site and contacted EPA that same day expressing an interest in being involved in the response. On October 19, 2010, Cascade Natural Gas met with USCG, EPA, and the rest of the Unified Command to discuss additional actions appropriate at the Site. The USCG subsequently added Cascade Natural Gas to the Unified Command and issued Cascade Natural Gas an Admirdstrative Order for a Pollution Incident (Order) to implement response actions at the Site under oversight of USCG. Cascade Natural Gas accepted the Order (Acceptance of Order) in a letter dated October 29, 2010 (Appendix D).

In response to the Order, Cascade Natural Gas developed the Work Plan, which outlines the scope and details of the Action. The Action includes the following key elements:

- Investigation of the location and orientation of the abandoned Pipe
- Permanent plugging of the Pipe as close as practicable to the shoreline
- Removal of all portions of the Pipe from the new plug to the terminus of the Pipe
- Backfilhng of the excavation created by removal of the Pipe with clean beach material
- Placement of an Organo-Clay mat over impacted sediments near the terminus of the Pipe that have been observed to generate sheen with only minimal disturbance
- Continued maintenance of a containment system ımtil the Action is complete and field observations and inspections confirm the situation is stable (no sheen)

On November 5, 2010, USCG and the other members of the Unified Command approved the Work Plan. Cascade Natural Gas commenced the Action immediately upon approval and completed the Action on November 8, 2010. Post-completion inspections of the Action are continuing pursuant to the Work Plan (Anchor QEA and Aspect 2010; Appendix A) and are described in Section 2.9.

1.2 Completion Report Purpose

This Completion Report describes the Action and demonstrates that implementation of the Action was consistent with the Work Plan and the National Contingency Plan.

1.3 Completion Report Organization

The Completion Report is organized into the following sections:

- Section 1: Introduction
  Provides context for the Completion Report, including the Site description and background and the purpose of the Action
- Section 2: Summary of Action
- Section 3: Completion of Work Plan Objectives
  Assesses the effectiveness of the Action in meeting the Work Plan objectives
- Section 4: Continued Investigation
  Presents ongoing Site investigation

2 SUMMARY OF ACTION

Cascade Natural Gas retained Anchor QEA, LLC, and Aspect Consulting (Aspect) to assist with development and oversight of the Action. Cascade Natural Gas selected Clearcreek Contractors (Clearcreek) to implement the Action.

Cascade Natural Gas quickly prepared for the Action to be conducted during extreme low tides between November 5 and 8, 2010. With the help of EPA, Cascade Natural Gas obtained access agreements to perform the Action. DNR granted access to the intertidal work zone pursuant to a Consent for Access to Property. Natacha Sesko and the McConkey Family Trust granted access to the upland portion of the Site pursuant to similar agreements. The access agreements are included in Appendix E.

The Action was completed over a three-night construction period to take advantage of low tides. This section summarizes the Pipe location effort, mobilization, daily work activities, post-completion inspections, and characterization of wastes generated by the Action.

2.1 Locating the Pipe

Before the Action commenced in the intertidal area, Cascade Natural Gas used hand tools to field-locate the Pipe as far into the uplands as possible. Efforts to identify the origin of the Pipe included reviewing maps and diagrams of the former MGP and reviewing City of Bremerton sewer and stormwater records. The investigation showed the Pipe was likely an abandoned storm drain or combined sewer outfall that was once connected to or may still be connected to an abandoned vault on the Sesko Property. The vault was likely connected by a separate pipe or pipes to one or more former catch basins within the footprint of the former MGP.

In addition to locating the Pipe, utility locates were performed in the vicinity of the Site to identify potential constraints to implementation of the Action. A City of Bremerton low pressure sewage force main was located in the intertidal area running parallel with and meandering along the shoreline. This force main was staked and protected throughout the Action.

2.2 Mobilization

Mobilization of construction materials, staging, and pre-construction meetings were complete by the evening of November 5, 2010. The mobilization resulted in an upland exclusion zone that included a 175-ton mobile crane, stockpiles of approved lill material, the construction of a Site access stairway, and a lined containment zone with separate lined containers for excavated material, the Pipe, and excavation water. A forward operation center was provided in a warehouse owned by the McConkey Family Trust adjacent to the upland staging and exclusion zone (Figure 3).

Cascade Natural Gas produced a Fact Sheet (Appendix F) to inform the community about the Action and to provide a point of contact for questions. EPA distributed the Fact Sheet to businesses and residences in the vicinity of the Site. The Fact Sheet was also on-hand during performance of the Action to distribute as needed to persons curious about the Action. Cascade Natural Gas did not receive any inquiries about the Action.

2.3 Activities of the Shift Beginning November 5, 2010 (Night No. 1)

On November 5, 2010 (Night No. 1 of the Action), a pre-work Health and Safety meeting was held to discuss safety procedures, potential hazards, and receive sign-off on the Site Health and Safety Plan from all present. Work began at 7:30 p.m. Pacific Daylight Time (PDT) with mobilization by crane of light plants (for night-time illumination), low ground pressure (LGP) excavator, and other materials from the upland staging area to the intertidal work zone. Once the intertidal work zone was estabhshed, the new plug location (Figure 4) was excavated at a location where the Pipe was less than 4 feet below the surface, as established in the Work Plan (Anchor QEA and Aspect 2010; Appendix A). This plug location was selected based on the infeasibility of exposing and plugging the Pipe at a greater depth closer to the uplands. A deeper trench would have likely collapsed, jeopardizing worker safety, and the use of shoring equipment would have adversely impacted the shoreline environment.

As material was excavated, it was directly loaded into a 3-cubic-yard skip box and moved by crane to the upland containment area. Water was pumped as needed from the excavation to an upland storage tank for characterization and disposal.

At 11:35 p.m. PDT, the LGP excavator exposed the Pipe and the excavation walls were prepared for worker entry. When safe access to the Pipe was achieved, a Clearcreek laborer entered the excavation and drilled a hole in the top of the Pipe to relieve potential head pressure. After drilling, minimal water was released from the Pipe and was immediately pumped from the excavation. The Pipe was then cut with an abrasive disc saw to allow for the removal of Pipe sections resulting in a clean end-of-pipe edge to facilitate the plug installation. At 12:37 a.m. PDT on November 6, two sections of the Pipe were removed from the excavation and placed into a second 3-cubic-yard skip box for removal from the intertidal work zone.

The excavation was prepared for plugging by dewatering and by removing material from the end-of-pipe. At 1:35 a.m. PDT, a pneumatic plug was installed approximately 3 feet upslope of the end-of-pipe (Figure 4). The remaining 3 feet of the Pipe was hand packed with rapid curing hydraulic cement, creating a secure plug. A 2-inch steel pipe was positioned at the end-of-pipe and was eventually cut flush with the existing grade to facilitate locating the end-of-pipe in the future.

Pursuant to the Work Plan, the excavation was filled with approximately 6 cubic yards of large beach material to within 2 feet of original grade (Anchor QEA and Aspect 2010; Appendix A). The large beach material consisted of clean 10-inch streambed cobbles per Section 9-03.11(2) of the Washington State Department of Transportation (WSDOT) handbook. Approximately 9 cubic yards of small beach material (see Table 1) were placed in the excavation until it was returned to original grade. All backfill material was provided by a WSDOT certified source. All excavated materials were removed via crane to the upland containment area, and the LGP excavator was staged above the high water mark.

Table 1
Small Beach Material Specifications

Sieve Size	Percent Passing by Weight
2-inch	100
1-inch	60 to 100
1/2-inch	30 to 50
3/8-inch minus	0 to 30

The specifications in Table 1 satisfy the BMPs proposed by the Washington State Department of Fish and Wildlife (WDFW) for the top layer of backfill used in the Action.

For characterization and to assist in profihng and disposal of the removed material, Aspect collected two samples:

1. A sample (PIPE-40-110610) of the contents of the southernmost section of removed Pipe
2. A sample of sediment (SED-40-110610) just outside the base of the Pipe at the same location

Samples were submitted to Friedman & Bruya, Inc., laboratory for analysis. Analyses and analytical results are described in Section 2.7.

The Anchor QEA daily construction report from Night No. 1 is provided in Appendix G.

2.4 Activities of the Shift Beginning November 6, 2010 (Night No. 2)

On November 6, 2010 (Night No. 2 of the Action), excavation of the Pipe and associated sediments began after the nightly safety briefings at approximately 10:00 p.m. PDT with the mobilization of required intertidal work zone equipment. The excavation was located immediately downgradient of the new plug location with great care taken to maintain the plug (Figure 4). All Pipe sections were handled separately from removed sediment. The Pipe sections and removed sediment were hoisted in 3-cubic-yard skip boxes to their respective containers in the upland containment area. The final section of the Pipe was removed from the intertidal work area at 12:00 a.m. PDT on November 7.

In total, approximately 60 lineal feet of Pipe was removed from the excavation. The dimension of the excavation tapered from approximately 5 feet wide and 5 feet deep at the Pipe plug location to 2 feet wide and 1 foot deep where the last section of Pipe was removed (Figure 4). The excavation was backfilled using small beach material, as specified in Table 1.

In addition to the Pipe removal and backfill activities, the Organo-Clay mat placement area was laid out with stakes by Anchor QEA and Aspect using offset measurements from known locations. Clearcreek prepared the sediment surface for placement of the Organo-Clay mat by removing larger rocks to prevent damage during installation.

For characterization and to assist in profihng and disposal, Aspect collected three samples of the removed material:

1. A sample (PIPE-80-110610) of the contents of the section of Pipe that had been exposed and plugged by USCG on October 6 and 7, 2010
2. A sample of sediment (SED-80-110610) just outside the base of the Pipe at the same location
3. A sample of sediment (SED-110-110610) collected just beyond the end of the northerumost section of removed Pipe

Samples were submitted to Friedman & Bruya, Inc., laboratory for analysis. Analytical results are described in Section 2.7.

The Anchor QEA daily construction report from Night No. 2 is provided in Appendix G.

2.5 Activities of the Shift Beginning November 7, 2010 (Night No. 3)

On November 7, 2010 (Night No. 3 of the Action), work began with the stockpifing of large beach material in the upper intertidal work zone. When the tide had ebbed sufficiently, the Organo-Clay mat was mobilized from the upland staging area. The Organo-Clay mat specifications are presented in Appendix H. The mat had been pre-cut during the day on November 7, 2010 into 50-by-15-foot panels, which were placed in the upper intertidal area and unrolled in the delineated area that had been staked and cleared the previous night until the entire targeted area was covered (Figure 4). The panels were overlapped, so there were no gaps in between.

After the panels were in place, the LGP excavator was used to place large beach material on the Organo-Clay mat. The large beach material was first placed on the eastern edge of the mat to create a pathway to the lower intertidal zone for cover placement. Once the large beach material was placed to a nominal 1-foot thickness covering the eastern portion of the mat, the LGP excavator proceeded to the lower intertidal area. Using this method, the entire mat and 10-foot overplacement area was covered before tidal inundation. Care was taken not to cover the City of Bremerton 10-inch stormwater outfall and its upgradient pipe sections, which are located northeast of the mat (Figure 4). A cross-section representing the Organo-Clay mat and cover is presented in Figure 5. The containment boom system was checked and determined to be clean enough to be re-used and extended to contain the entire mat and cover area (Figure 4). Approximately 2,600 square feet of sediment was covered with the Organo-Clay mat and 4,800 square feet of mat and sediment was covered with the large beach material.

Small beach material was transported by crane to the upper intertidal area and placed in the areas where the tracks were visible until the LGP excavator was in place to be removed from the intertidal area by the crane. All construction materials were gathered and placed into a skip box and removed by crane from the intertidal area.

Aspect collected one water sample (TANK 110710) from the collection tank to which water removed from the beach area was pumped. The sample was submitted to Friedman & Bruya, Inc., laboratory for analysis. Analytical results are described in Section 2.7.

The Anchor QEA daily construction report from Night No. 3 is provided in Appendix G.

2.6 Demobilization

Demobilization of the upland staging area began on November 8, 2010, after completion of the Action. The crane and unused material stockpiles were removed from the Site. The stairs constructed on the Sesko Property to provide safe worker access from upland to the intertidal area were removed and stored on the McConkey Property for potential future use.

Photographs of the Site following demobilization taken on November 12, 2010, are provided in Appendix I.

2.7 Characterization of Sediments and Derived Wastes

Materials removed during the Action were sampled for characterization and disposal. The analytical results are provided in Appendix J.

Pipe debris, including Pipe contents, were segregated in separate containers (as described in previous sections) from sediments located outside the Pipe pending the results of characterization. Wastewater was collected in a separate collection tank. Samples were analyzed as follows:

- Sediment samples were analyzed for:
  - Volatile organic compounds (VOCs) by EPA Method 8260C
  - Semivolatile organic compounds (SVOCs) by EPA Method 8270D
  - Petroleum hydrocarbons by Ecology Methods NWTPH-G and NWTPH-Dx
  - Total Organic Carbon (TOC) by EPA Method 9060A
- Pipe content samples were analyzed by the same methods as sediment samples and additionally for total and toxicity characteristic leaching procedure (TCLP) metals:
  - Chromium, arsenic, selenium, silver, cadmium, barium, and lead by EPA Method 200.8
  - Mercury by EPA Method 1631E
- The wastewater sample was analyzed for:
  - VOCs by EPA Method 8260C
  - SVOCs by EPA Method 8270D

- Petroleum hydrocarbons by Ecology Methods NWTPH-G and NWTPH-Dx.

The analytical data indicated the following:

- The primary constituents detected in all samples were polycyclic aromatic hydrocarbons (PAHs). Lesser amounts of lighter aromatic hydrocarbons, such as benzene, toluene, ethylbenzene, and xylenes (BTEX) were also detected in several samples. The observed chemical fingerprint is consistent with a coal tar product.
- Gasoline-range, diesel-range, and oil-range petroleum hydrocarbons were detected in most samples; however, the laboratory chemist indicated the chromatograms were more consistent with a coal tar or creosote product than a petroleum product.
- The highest concentrations of PAHs and BTEX were detected in the Pipe and sediment samples at the location where USCG had plugged the Pipe on October 16, 2010. Lower concentrations were detected in the Pipe and sediment samples at the location where the Pipe is currently plugged.
- At locations where samples were collected from both Pipe contents and adjacent sediments, higher constituent concentrations were detected inside the Pipe.
- Concentrations of VOCs, SVOCs, and metals in all samples were below potential hazardous waste limits.

The analytical results allow for disposal of the sediments, Pipe debris, and collection tank wastewater as non-hazardous waste. Clearcreek transported the solld sediment waste and Pipe material to the Alfied Waste Roosevelt Regional Landfill (Roosevelt Landfill) in Roosevelt, Washington. Wastewater was transported to Emerald Services, Inc., in Seattle, Washington. The waste facihty receipt documentation is presented in Appendix K.

2.8 Completion of Action

As specified in the Work Plan, the Action was completed at 2 a.m. PDT on November 8, 2010, when all work activities other than demobilization and post-completion inspections were finished (Anchor QEA and Aspect 2010; Appendix A). On November 16, 2010, USCG issued a letter confirming the Action was completed satisfactorily. In its response, Cascade Natural Gas clarified that the Completion Report would be submitted and the post-completion inspections would be performed as specified in the Work Plan (Appendix D).

2.9 Post-completion Inspections

Pursuant to the Work Plan, inspections of the intertidal area continued following completion of the Action. The in-water containment system was inspected twice a week for four weeks after the Action was completed. As part of those inspections, Cascade Natural Gas visually inspected the ground surface in the area of the new Pipe plug for sheen. The inspections verified the containment boom was in place and functional and the new Pipe plug was working properly. As contemplated in the Work Plan, the containment system was decommissioned on December 10, 2010, because no product or sheen was observed on the water or sediment during four consecutive inspections (Anchor QEA and Aspect 2010; Appendix A). At the time this Completion Report was produced, no product or sheen has been documented in any inspection. Copies of all inspection reports through January 15, 2011, are included in Appendix L.

Inspections will continue once a week for an additional four months (or longer, if directed by EPA) after decommissioning of the containment system to ensure the new Pipe plug is effective and no product or sheening is observed in the water. If such conditions are observed, additional actions will be discussed with EPA because USCG transferred to EPA lead agency status on November 12, 2010 (Appendix M).

3 COMPLETION OF WORK PLAN OBJECTIVES

The Action satisfied the following objectives of the Work Plan:

- The Pipe was located and traced to the shoreline.
- The Pipe was plugged as close as practicable to the shorehne, at the location specified in the Work Plan.
- All Pipe sections downgradient of the new plug were removed together with all overburden sediments.
- All excavations were filled to grade with clean beach material.
- The Organo-Clay mat was placed over the area of impacted sediments specified in the Work Plan.

Periodic inspections as specified in the Work Plan (Anchor QEA and Aspect 2010; Appendix A) are the only remaining activities. These inspections are ongoing.

4 CONCLUSIONS AND FUTURE RESPONSE ACTIONS

The Action successfully plugged and removed a portion of the Pipe, which may unknowingly have served as a transport mechanism for MGP-related contamination to the shoreline environment. However, because of the widespread nature of the contamination, it is highly unlikely the Pipe is the source of all MGP-related contamination identified in the shoreline enviromnent.

Additional investigation is necessary to evaluate the nature and extent of MGP-related contamination, the pathways for such contaminants to reach the shoreline environment, and the risks the MGP-related contamination may present to human health or the environment. Cascade Natural Gas will be discussing the scope and schedule for these future response actions with EPA because USCG has transferred lead agency status to EPA.

5 REFERENCES

Anchor QEA, LLC (Anchor QEA), and Aspect Consulting (Aspect), 2010. Final Work Plan: Former Bremerton MGP Site, Incident Action and Time Critical Removal Action. Prepared for U.S. Coast Guard Sector Puget Sound Incident Management Division on behalf of Cascade Natural Gas Corporation. November 4, 2010.

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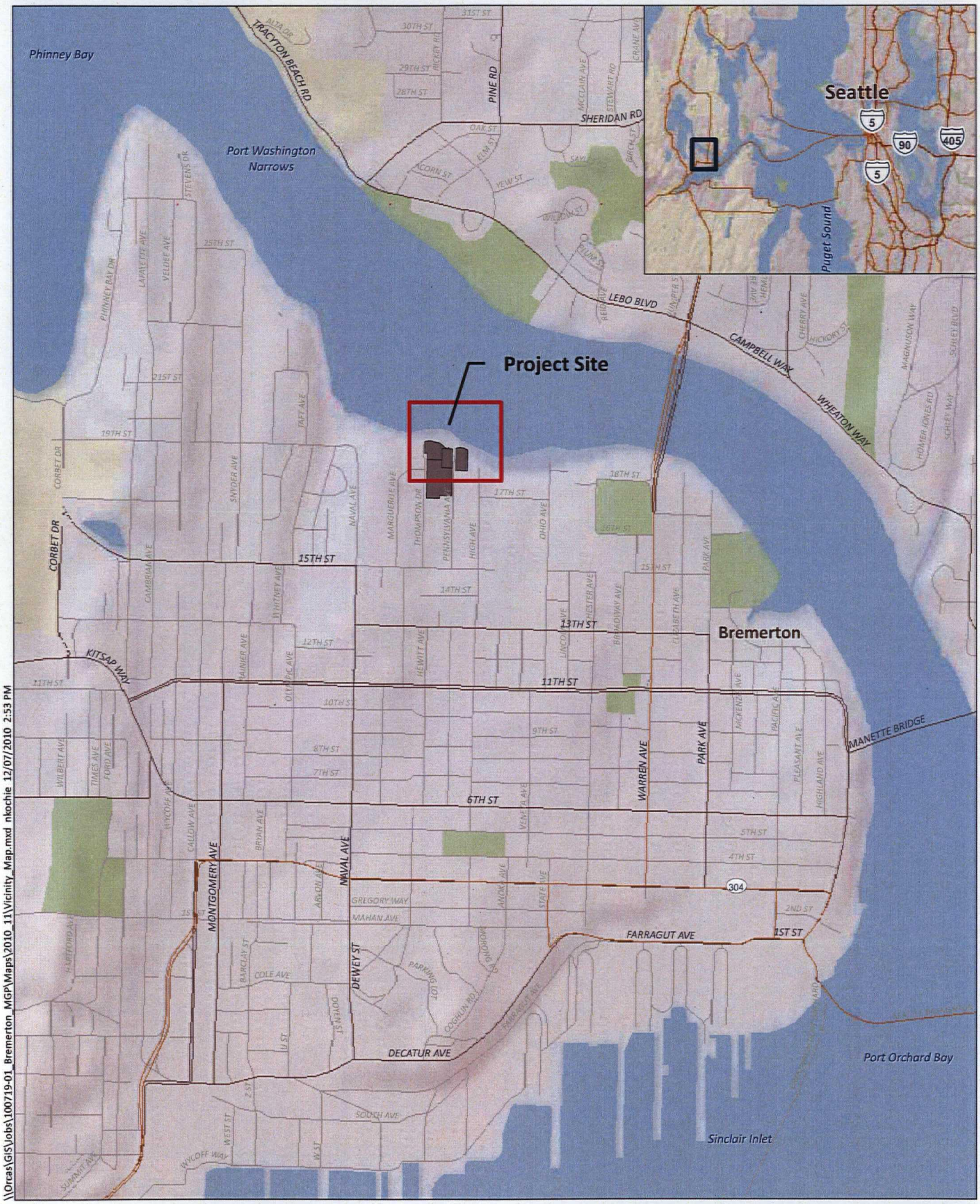
FIGURES

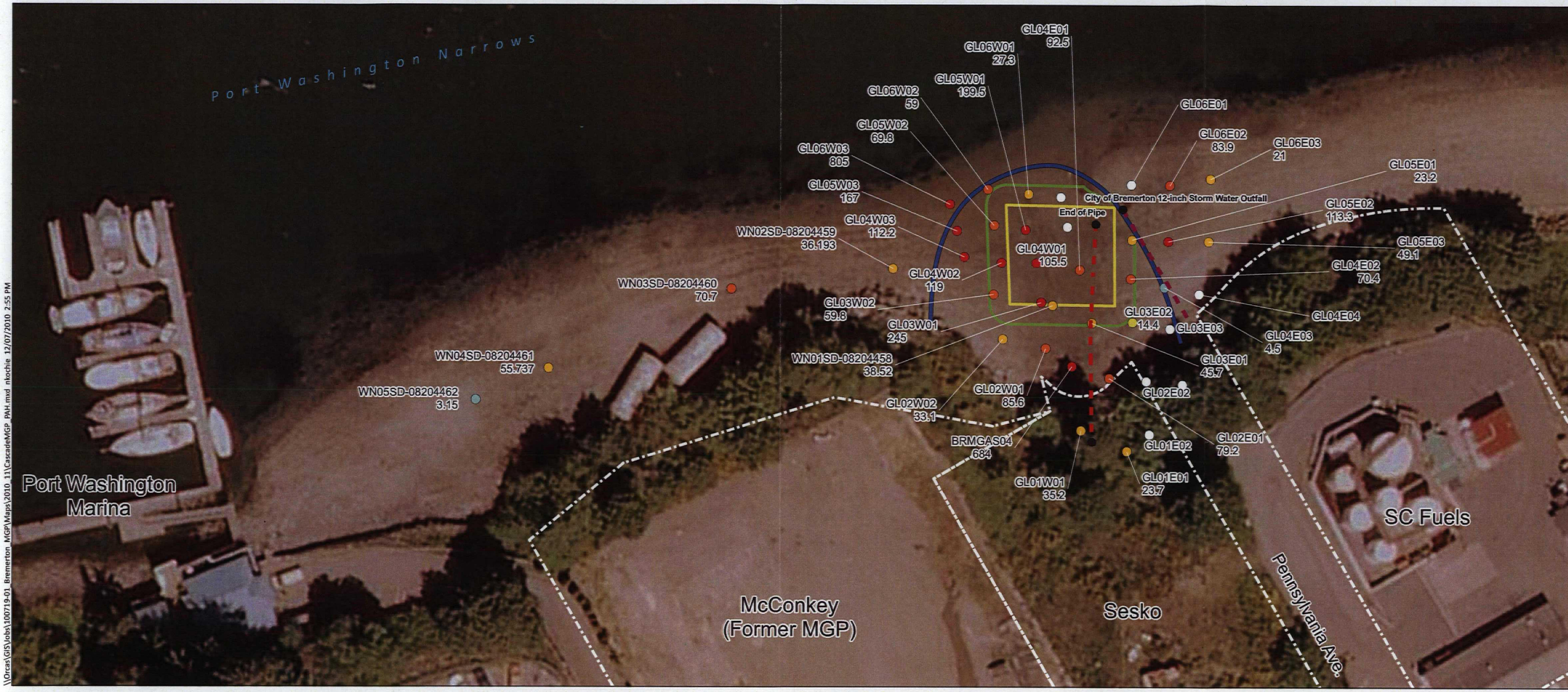


\\Orcas\GIS\Jobs\100719-01_Bremerton_MGP\Maps\2010_11\Vicinity_Map.mxd nkochie 12/07/2010 2:53 PM

ANCHOR QEA

Feet
0 750 1,500

Figure 1
Vicinity Map
Completion Report
Former Bremerton MGP Site



\\Orcas\GIS\Jobs\100719-01_Bremerton_MGP\Maps\2010_11\CascadeMGP_PAH.mxd nkochie 12/07/2010 2:55 PM

Detected Total PAH Concentrations (mg/kg)

- No Data
- <1
- ≥1 - 10
- ≥10 - 20
- ≥20 - 50
- ≥50 - 100
- ≥100

- End of Pipe
- 12-inch Concrete Pipe Configuration
- Assumed City of Bremerton 12-inch Storm Water Pipe Configuration
- Boom Location
- Extent of Organo-Clay Mat
- Cover of Organo-Clay Mat

Feet
0 25 50 75 100

NOTES:
1. Horizontal Datum: Washington State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.
3. Base data provided by Aspect Consulting.
4. Total PAH sample data provided by Aspect Consulting and EPA. Locations are approximate.

ANCHOR QEA

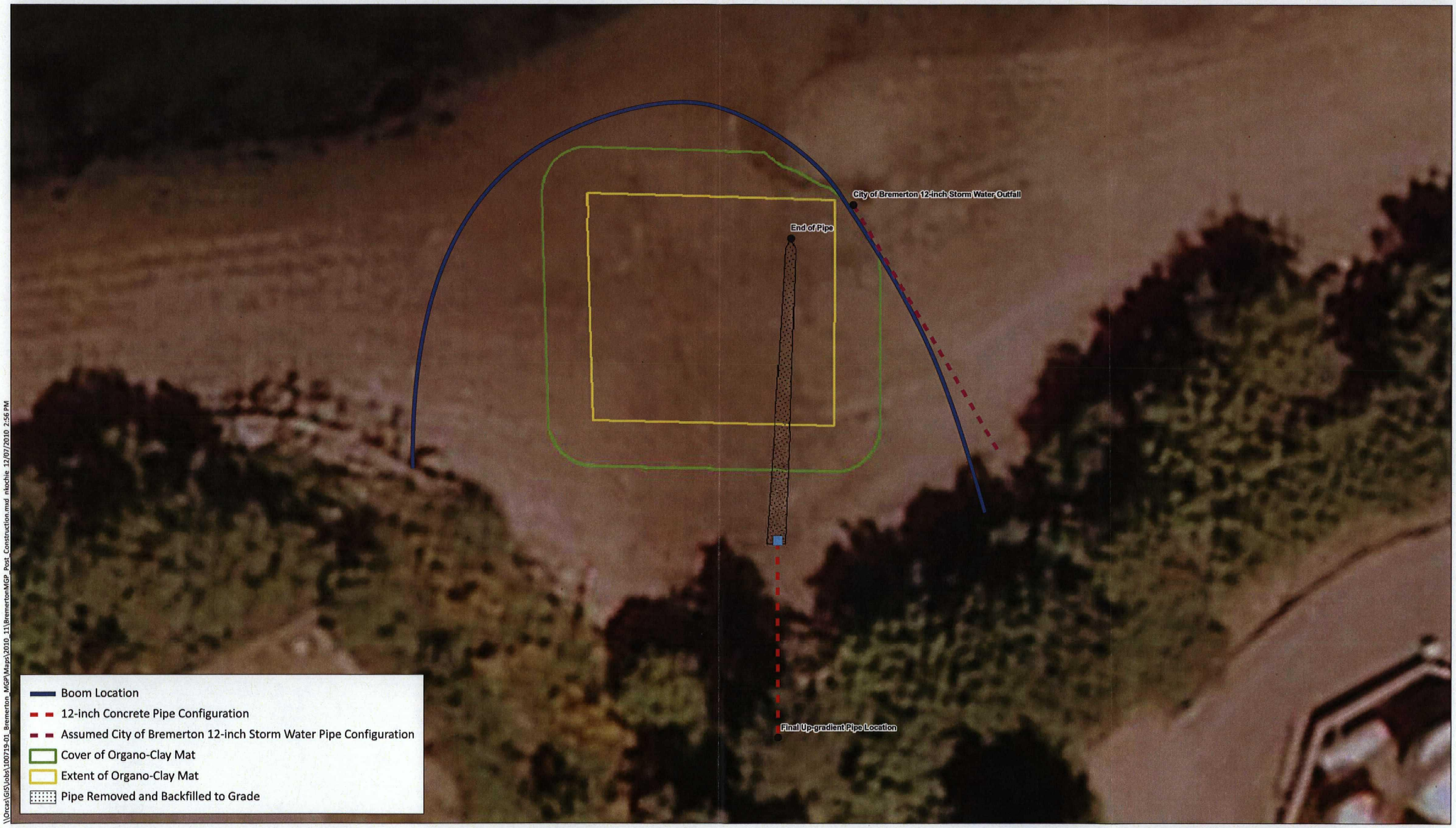
Figure 2
Total Polycyclic Aromatic Hydrocarbons Sediment Sample Locations
Completion Report
Former Bremerton MGP Site

\\Orcas\GIS\Jobs\100719-01_Bremerton_MGP\Maps\2010_11\CascadeMGP_revised_staging.mxd nkochie 12/07/2010 2:59 PM

ANCHOR QEA

NOTES:
1. Horizontal Datum: Washington State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.
3. Base data provided by Aspect Consulting.

Figure 3
Site Access and Staging
Completion Report
Former Bremerton MGP Site

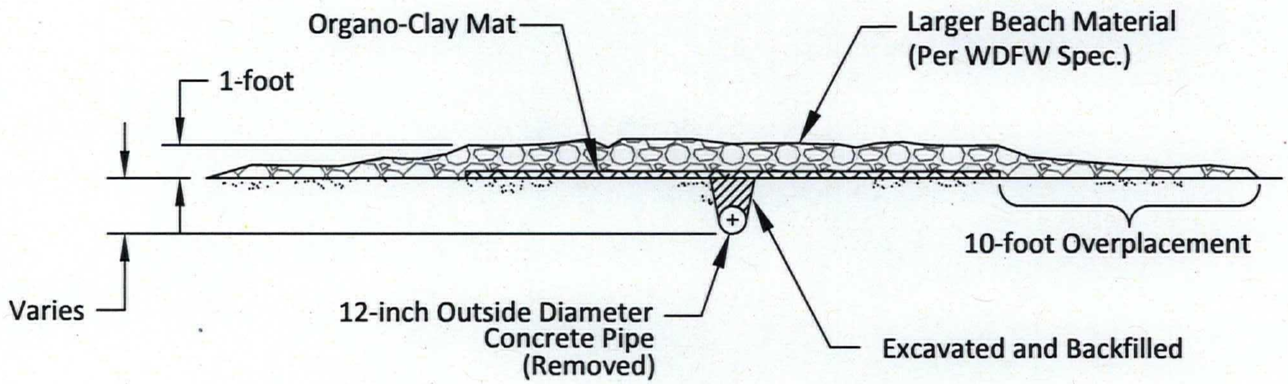


ANCHOR QEA

NOTES:
1. Horizontal Datum: Washington State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.

Feet
0 10 20 30 40

Figure 4
Pipe Removal, Organo-Clay Mat Extent, and Cover
Completion Report
Former Bremerton MGP Site



Typical Organo-Clay Mat Placement and Cover

Not to Scale

NOTE: WDFW - Washington Department of Fish and Wildlife

Dec 08, 2010 8:36am cdavidson K:\Jobs\100719 - Cascade MGP\100719-01\10071901-RP-003.dwg FIG 5

ANCHOR QEA

Figure 5
Cross Section of Organo-Clay Mat and Cover
Completion Report
Former Bremerton MGP Site

Appendix A

APPENDIX A
FINAL WORK PLAN: FORMER BREMERTON MGP SITE, INCIDENT ACTION AND TIME CRITICAL REMOVAL ACTION

FINAL WORK PLAN

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1519 Alaskan Way S. Building 4

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On behalf of

Cascade Natural Gas Corporation

8113 West Grandridge Boulevard

Kennewick, Washington 99336-7166

Prepared by

Anchor QEA, LLC

1423 Third Avenue, Suite 300

Seattle, Washington 98101

Aspect Consulting

401 Second Avenue South, Suite 201

Seattle, Washington 98101

November 4, 2010

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1 INTRODUCTION

Discovery of an abandoned and broken cement pipe in the intertidal area near the former location of the Bremerton manufactured gas plant (MGP) led to a determination by the U.S. Coast Guard (USCG) that prompt action is required to:

- Quickly determine, secure, and remove an ongoing source of contaminants to adjacent waters
- Address public safety and awareness

Accordingly, USCG issued Cascade Natural Gas Corporation (Cascade Natural Gas) an Administrative Order for a Pollution Incident (Order) to implement an Incident Action and Time Critical Removal Action (Action) under oversight of USCG. The order directs Cascade Natural Gas to:

1. Prevent further contamination of the marine environment by permanently securing the release of the MGP waste.
2. Remove the cement pipe and all visible MGP waste contamination from the marine environment.
3. Cleanup operations shall begin no later than 48 hours from the date of this order.
4. Submit a detailed work plan to USCG for removal of the MGP waste and associated pipe prior to conducting any operations.

At the time the Order was issued, it was presumed the abandoned pipe was the source of the MGP waste in the shoreline environment. Subsequent investigations have determined the pipe is unlikely to be the only source of MGP waste or other waste to the shoreline environment and there are likely multiple independent sources for such waste. The investigations have also shown it is not feasible to address the widespread waste in the shoreline environment as part of the immediate Action. Instead, the Action must focus on the abandoned pipe and the impacts presumed to have some connection to that pipe. Additional removal or remedial actions will be necessary in the future to address the broader impacts in the shoreline environment.

This Work Plan proposes a scope of work for the Action that satisfies the objectives of the Order. The Action includes the following key elements:

- Investigation of the location and orientation of the abandoned pipe
- Plugging of the pipe as close as feasible to the bluff
- Removal of all portions of the pipe from the new plug tmtll the terminus of the pipe
- Backfilhng of the excavation created by removal of the pipe with clean beach material
- Placement of an Organo-Clay mat over impacted sediments near the terminus of the pipe that have been observed to generate sheen with minimal disturbance
- Continued maintenance of a contairunent system until the Action is complete and field observations and inspections to confirm the situation is stable

Upon completion of the Action as described in this Work Plan, Cascade Natural Gas will request that USCG issue a written determination that the Order is satisfied. USCG plans to transfer lead agency status to the U.S. Envirorunental Protection Agency (EPA) after completion of the Action.

2 SITE DESCRIPTION AND PROJECT SCOPE

The former Bremerton MGP was located on the north shore of Dyes Inlet in Bremerton, Washington, between Thompson and Pennsylvania Avenues in West Bremerton (Figure 1). Land use in the vicinity of the former MGP is currently industrial and light commercial. Recently, an abandoned 12-inch concrete pipe in the intertidal area was observed to be the apparent source of product and intermittent sheens on surface water of Dyes Inlet. It is presumed the pipe has some connection to the former MGP. The property where the former MGP was situated plus all areas affected by waste originating from the former MGP, whether in the upland or shoreline environments, are collectively considered "the Site" for purposes of this Work Plan. The portion of the Site where the pipe is located is shown on Figure 1.

This Work Plan details the Action necessary to control ongoing releases from the abandoned pipe. The area where the Action will occur is shown on Figure 2 (Action Area). The Work Plan does not apply to other areas of the Site or to other sources or release mechanisms other than the pipe. Future response actions will be required at the Site after completion of the Action. Such future actions will be conducted under one or more separate agreements with EPA or the Washington Department of Ecology (Ecology). These future actions will include determination of the nature and extent of the MGP waste, risk evaluations, and the assessment and identification of appropriate next steps.

2.1 Work Plan Organization

This Work Plan is divided into the following sections:

- Section 3: Overview of Incident Action and Time Critical Removal Action
- Section 4: Applicable or Relevant and Appropriate Requirements
- Section 5: Access to Action Area
- Section 6: Health and Safety
- Section 7: Containment and Spill Response
- Section 8: Site Preparation
- Section 9: Securing Location of 12-inch Pipe and Plug Location
- Section 10: Removal of 12-inch Pipe
- Section 11: Backfill Excavation Areas
- Section 12: Handling, Transport, and Disposal of Pipe and Sediments

- Section 13: Placement of Organo-Clay Mat
- Section 14: Completion of Incident Action and Time Critical Removal Action
- Section 15: Post-completion Inspections
- Section 16: Schedule

3 OVERVIEW OF INCIDENT ACTION AND TIME CRITICAL REMOVAL ACTION

Past actions performed by USCG and EPA have involved investigation of the pipe and surrounding sediment, removal of a 4-foot section and plugging of the pipe ends in that area, and installation and maintenance of a containment system to llmit the potential release of product or sheen into Dyes Inlet. Figure 3 shows previous sediment sample locations and total polycychc aromatic hydrocarbon (PAH) concentrations in those sediments. The contairunent system consists of a hard boom, oil absorbent tubes, and a temporary silt fence. Under direction of USCG, the containment system was maintained by Ballard Diving & Salvage (Ballard). Ballard periodically replaced oil absorbent tubes, repositioned the booms after rough water conditions, and confirmed the integrity of the pipe plug. Ballard was also on-call for splll response in the event conditions warranted such a response. Cascade Natural Gas will assune responsibility for maintenance of the containment system and any necessary spill response as part of the Action.

The scope of the Action has necessarily been dictated in large part by feasibility and constructabihty considerations, including the following:

- Time limitations for doing work near the 0 mean lower low water (MLLW) elevation given the extent of low tides and the fact that these tides occur at night
- Minimizing the number of nights that intertidal work is required
- Minimizing the potential for mobilization of contaminants into adjacent waters
- Minimizing exposure of the ecological environment to mobilized contaminants

3.1 Elements of Incident Action and Time Critical Removal Action

The Action, including contingencies, will include the following elements:

1. Erect improved signage at the Site to increase public safety and awareness and discourage human contact with the abandoned pipe or affected sediments. The signage will be maintained until cessation of the inspections described in Section 15.
2. Locate and plug the pipe as close to the bluff as feasible (approximately 40 lineal feet from the vegetated shoreline) taking special precautions to not impact other uiidentified pipes. Spill response capabilities will be in place duuing this activity.
3. Establish staging area on the uplands immediately above the affected area of the beach and improve access to the staging area by clearing Scotch Broom and shrubs

and placing gravel on an existing road (Figure 2). No modification of the shoreline will be performed other than improving temporary worker access to the beach. The potential for upland soil erosion will be mitigated with control measures (for example, placement of silt fences, jute matting, and hydroseed). Native riparian vegetation will be left in place along the shoreline to the extent practicable.

4. Mobilize excavation equipment (for example, small, tracked "Bobcat" type) to the upper beach area by crane methods.
5. Due to limitations for doing work near the 0 MLLW elevation given the extent of low tides and the fact that these tides occur at night, the pipe must be excavated in 4-foot sections and all sediments removed as part of the excavation must be placed directly into a fined transfer box to contain any excess water. Work will be done "in the dry" to the extent practicable. Spill response capabilities will be in place throughout the excavation activities, including the use of oll absorbent pads in each 4-foot long excavation. Pipe sections will be placed directly into a lined container separate from removed sediments so any sections containing sludge can be profiled and disposed of separately. Once filled, the transfer box will be lifted to the upland staging area and placed onto a truck for final handling, profiling, transport, and disposal at a Subtitle D landfill.
6. The excavations will be backfilled with clean beach material stockpiled in the upland staging area.
7. After completion of the excavation activities, an Organo-Clay mat will be placed during low tide conditions over a portion of the sediments in the vicinity of the pipe terminus that have been observed to generate sheen with minimal disturbance (Figure 4). Designed to adsorb low soluble organics (for example, oil and PAHs), the mat will have Organo-Clay encapsulated between two layers of geotextile and will consist of overlapping panels. Based on time limitations and low tide elevations, it is expected that four 50-foot by 15-foot panels can be placed starting at about -1 MLLW. Each panel will then be extended 50 linear feet up slope. Each panel will overlap approximately 1-foot with adjacent panels. The actual lower elevation of the panels will be determined during construction. To the degree possible, the condition of sediments beyond the extent of the panels will be documented.
8. Before the lower extent of the panels are inundated by the tide, clean beach material will be placed (moving up slope) at a nominal thickness of 12-inches (plus or minus 2-

inches). Starting at the edge of the panels the beach material will be feathered for approximately another 10 feet (Figures 4 and 5). Along with the Organo-Clay mat, approximately 300 cubic yards of clean beach material will be used to cover the current substrate.

9. After installation of the Organo-Clay mat, the in-water containment system will be repositioned around the mat area for an estimated four weeks. The in-water containment system will be inspected twice a week during those four weeks. As part of those inspections, the inspection team will check the integrity of the new pipe plug. The containment system will be decommissioned if there is no observation of product or sheen on the water for four consecutive inspections. Inspections will continue once a week for an additional four months after decommissioning of the containment system (or longer, if directed by EPA) to ensure the new pipe plug is effective and no product or sheening is observed in the water. If such conditions are observed, additional actions will be discussed with EPA.

Additional details for the key activities are detailed in the following sections.

4 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The Action will need to satisfy the substantive provisions of apphcable or relevant and appropriate requirements (ARARs). The ARARs that have been determined by USCG to potentially apply to the Action are shown in Table 1. USCG is conducting the consultations it deems necessary with federal, state, and local resource and regulatory agencies (including the Suquamish Tribe) to address the ARARs. The Action addresses the known ARARs by prescribing best management practices (BMPs) to be observed during performance of the Action.

The identified BMPs include those recommended by the Washington Department of Fish and Wildlife (WDFW) and Brad Martin of Ecology. Dining implementation of the Action, an on-site Cascade Natural Gas representative (construction manager) will track daily operations and compliance with the identified BMPs.

Table 1

Applicable or Relevant and Appropriate Requirements

ARAR	Agency	Trigger	Notes
Section 404, Clean Water Act	U.S. Army Corps of Engineers (USACE)	Work in waters of United States, including wetlands	Contact: Jess Jordan 206-439-4536 J.Jorda@usace.army.mil
Section 10 Rivers and Harbors Act	USACE	Placing structure or fill in waters of United States	
Migratory Bird Treaty Act	U.S. Fish and Wildlife Service (USFWS)	Federal action or permit that affects listed species	
Endangered Species Act documentation	U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Services (NMFS)	Federal action or permit that affects listed species	
Section 106, National Historic Preservation Act	USACE in consultation with Washington State Department of Archaeology and Historic Preservation, and Tribes	Federal undertaking or permit	
Water Quality Certification (Section 401)	Ecology	Applying for a federal license or permit for any activity that could cause a discharge of dredge or fill material into water or wetlands, or excavation in water or wetlands.	Contact: Rebekah Padgett 425-649-7129 rpad461@ecy.wa.gov
Hydraulic Project Approval	WDFW	Work that uses, diverts, obstructs or changes the natural flow or bed of state waters	Contact: Chris Waldbillig 360-874-7258 360-480-8128 (cell) Chris.Waldbillig@dfw.wa.gov

ARAR	Agency	Trigger	Notes
Aquatic Use Authorization or Easement	Washington State Department of Natural Resources (WDNR)	Use of state-owned aquatic lands	Unless otherwise exempt, Cascade Natural Gas will seek a Use Authorization or Easement within 2 to 4 months after the Action is complete for future actions on State-owned property. Contacts: Shayne Cothern 360-902-1064 Neal Cox 360-490-5355
State Environmental Policy Act (SEPA) review	City of Bremerton	Development project greater than $2,500, and not meeting exemption criteria	
Shoreline Substantial Development	City of Bremerton	Work within 200 feet of shoreline that does not meet exemption standards	
Critical Areas Ordinance Compliance	City of Bremerton	Work in or adjacent to designated critical areas (for example, wetlands, streams, and steep slopes)	
National Pollutant Discharge Elimination System (NPDES) Permit	Ecology	Construction activity that creates more acres of land through clearing, grading, excavating, or stockpiling of fill material; construction stormwater enters waters of the state	
Emergency Section 7 Consultation	USFWS and NMFS		

5 ACCESS TO ACTION AREA

Cascade Natural Gas, with the help of USCG and EPA, has secured the access necessary to implement the Action. Access has been granted by WDNR for the intertidal area, Natacha Sesko for the primary portion of the upland staging area and the McConkey Family Trust for the remainder of the upland area.

6 HEALTH AND SAFETY

The Health and Safety Plan (HASP) developed for the Action is provided in Appendix A. The contractor(s) retained by Cascade Natural Gas to implement the Action will be required to submit their own health and safety plans (consistent with the HASP), before commencing work at the Site.

7 CONTAINMENT AND SPILL RESPONSE

The containment system consists of a hard boom, oil absorbent tubes, and a temporary silt fence. Under direction of USCG, the containment system was maintained by Ballard. Ballard periodically replaced oll absorbent tubes, repositioned the booms after rough water conditions, and confirmed the integrity of the pipe plug. Ballard was also on-call for spill response in the event conditions warranted such a response.

Cascade Natural Gas has entered a contract with Ballard and has assumed responsibility for maintenance of the containment system and any necessary splll response as part of the Action. Ballard will be on-call to provide spill response capabilities duing performance of the Action. Until the Action is complete, Cascade Natural Gas will have a team inspect the containment system each low tide with the purpose of:

- Verifying the hard boom and oil absorbent booms are in place
- Verifying there is no obvious change in Site conditions (for example, significantly more sheening)
- Verifying that the existing pipe plug is still in place and effective

If any of these observations require action, Cascade Natural Gas will direct Ballard to take the appropriate action immediately. The inspection team will maintain a log and will contact MST2 Varela (the response supervisor on scene) directly at 415-720-4169 if anything significant is observed until the intertidal work begins. The inspection team will operate under the rules and procedures set forth in the HASP established for the Site (Appendix A).

In the event that an unexpected release of a hazardous substance occurs at the Site during performance of the Action (for example, rupture of a fuel fine), notification will be provided to the USCG National Response Center at 1-800-424-8802 and the Washington State Emergency Management Division at 1-800-OILS-911 within one hour of discovery. This reporting obligation will not apply to the disturbance, handling, and removal of hazardous substances anticipated as part of the Action.

The containment system will be repositioned during the excavation activities and placement of the Organo-Clay mat. After installation of the Organo-Clay mat, the in-water containment system will be repositioned around the mat area for an estimated four weeks.

The in-water containment system will be inspected twice a week during those four weeks. As part of those inspections, the inspection team will check the integrity of the new pipe plug. The containment system will be decommissioned if there is no observation of product or sheen on the water for four consecutive inspections.

Inspections will continue once a week for an additional four months (or longer, if directed by EPA) after decommissioning of the containment system to ensure the new pipe plug is effective and no product or sheening is observed in the water. If such conditions are observed, additional actions will be discussed with EPA.

8 SITE PREPARATION

Cascade Natural Gas will establish a staging area on the uplands immediately above the affected area of the beach (Figure 2). Cascade Natural Gas will improve access to the staging area by clearing Scotch Broom and shrubs and placing gravel on an existing road. Site preparation activities wlll be performed during daylight hours. No modification of the shoreline will be performed other than improving worker access to the beach, which is a health and safety concern. Native riparian vegetation will be left in place along the shoreline to the extent practicable.

Other activities include:

- Setting up a forward command and communication center and sanitation facilities (portable toilets)
- Improving temporary access for workers to the beach from the uplands (for example, switch back path or temporary stairway with handrail).
- Installing soil and sediment erosion control measures, including a perimeter silt fence
- Stockpihng backfill material in upland staging area
- Setting up hght plants to illuminate the intertidal area
- Positioning a boom truck in material transfer area
- Mobilizing equipment to the upland staging area
- Setting up a water containment and management system

9 SECURING LOCATION OF 12-INCH PIPE AND PLUG LOCATION

An initial activity of the Action will be to excavate at the toe of the bluff to verify the upland alignment of the pipe and the appropriate location for a permanent plug. The objective is to plug the pipe as close to the bluff as feasible taking special precautions to not impact other unidentified pipes (for example, City of Bremerton sewer or stormwater lines). This work was completed on October 27, 2010, and work revealed that the pipe is approximately 7 feet below the surface near the bluff line. Due to challenges of excavating to this depth in sandy intertidal material and worker safety concerns, the proposed location of the new plug is established at a point where the pipe is 4-feet below the surface. The proposed plug location is shown on Figure 4.

Before excavation commences, it will be necessary to remove the existing plug, drain off any water in the pipe, and install the new plug to contain any continuing flow from upland areas. Spill response capabilities will be in place during these activities.

10 REMOVAL OF 12-INCH PIPE

After the pipe is plugged, excavation of the pipe and adjoining sediments will commence with a small tracked excavator (for example, "Bobcat" type) and proceed toward the water until the end of the pipe is reached. Working "in the dry", the excavation will follow the receding tide to maximize the amount of removal duning the low tide period. Due to the seasonal low tides, which will occur between 2200 and 0600 hours, excavation of the pipe and sediments must occur in small 4-foot sections (excavations are expected to range from 4 feet wide by 4 feet deep to as shallow as 1 foot deep near the outfall). The total volume of material to be removed is expected to be approximately 30 cubic yards.

Spill response capabilities will be in place throughout the excavation activities, including the use of oll absorbent pads in each 4-foot long excavation. Excavated material will be placed directiy into a lined transfer box to contain excess water. Once filled, the box will be hfted to the upland staging area for direct transfer to a truck for water management, final handling, transport, and disposal at a Subtitle D landfill. Standing water in the fined transfer box will be removed and placed in a holding tank (for example, Baker Tank) and disposed of off site at an appropriate facility. Water will not be discharged into storm drains or the adjacent water body. All construction debris will be properly disposed of at an upland disposal facility.

Plugging and removal of the pipe will permanently secure the release of MGP waste from the pipe.

10.1 General Best Management Practices

Potential BMPs that will be observed during excavation and backfilhng activities include:

- Equipment will not be in use while tidal waters occupy the area. Work will performed "in the dry."
- Material (pipe and sediment) will be transferred directiy to a lined transfer box, which will be isolated from marine waters.
- Material will not be stockpiled below the ordinary high higher water (OHHW) mark.
- Oil absorbing pads will be placed as needed to absorb any free product in the excavation trench. Linear silt and oil booms will be set on the outside perimeter of

the excavation trench to retain any potential sheen through the first few tide cycles after excavation.

- Cascade Natural Gas will require its contractor to prepare and deploy a Spill Prevention Control and Countermeasures Plan (SPCC) consistent with Ecology regulations. Sediment and soll erosion control measures will be inspected and maintained prior to and during the Action.
- Excavation equipment will only be serviced in the upland staging area.
- Eqnipment will be decontaminated following each work cycle and wash water from decontaminating activities will not be discharged to the adjacent water body or to the storm drains (for example, via the use of containment basins).
- Construction personnel will limit access to the beach using designated access areas.
- Construction personnel will be trained in hazardous material handllng and will be equipped with appropriate response tools, including absorbent oll booms.
- Cascade Natural Gas will require its contractor to inspect fiiel hoses, oil or fuel transfer valves, and fittings on a regular basis for drips or leaks in order to prevent spills into the surface water.
- Impacted materials will be removed from the Site and disposed of at an approved location.
- Removal of clean sediments and organic matter will be minimized.
- In order to reduce the potential impacts on listed species, as much work as possible will be conducted in times of low tide.
- If the excavation activities create excessive turbidity and/or surface sheens that escape the limits of the containment boom, Cascade Natural Gas will direct its contractor to cease the activity and make necessary corrections.
- Oil-absorbent pads will be available to be deployed in the event of sheen created during work.

10.1.1 Additional Best Management Practices Proposed by WDFW

Additional BMPs proposed by WDFW include:

- Contaminated materials shall be removed from the Site and disposed of at an approved location.

- Equipment shall not work while tidal waters occupy the area, with the exception of work being done on a barge in isolation of marine waters such as inside cofferdams or isolated steel sheet plle.
- Fines shall not be stockpiled below the ordinary high water level (OHWL); they shall be placed on a barge or in a skip box, isolated from marine waters and above the OHWL.
- Equipment used for this project shall be free of exterual petroleum-based products while working around marine waters. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to its working below the ordinary high water line. Equipment shall be checked dally for leaks and any necessary repairs shall be completed prior to commencing work activities along the shoreline.
- Excavated materials shall not be stockpiled below the ordinary high water line; they shall be hauled off site and disposed of at an approved location.
- Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the water.
- Access to the beach shall be minimum necessary, trail width, and shall not use minimal angular rock or treated wood.
- Removal or destruction of overhanging bankline vegetation shall be hmited to that necessary for the construction of the project. Vegetation material removed from the bluff for trail access shall be minimuun possible and left in as whole pieces as possible, for example trees shall retain root balls and as much of the trunk as possible. This material shall be placed on the beach on the waterward side of the bulkhead.
- Native riparian vegetation will be left in place along the shoreline to the extent practicable.
- Excavations within the intertidal area shall be backfilled with beach material that meets the following conditions:
  - The material will be "clean," meaning it will not contain chemicals in concentrations exceeding sediment quahty standards established by Ecology's Sediment Management Standards.
  - The material will not contain silty or clay type soils.
  - The material will not contain any angular type rock.

  - The material will be spread along the entire length and width of the affected project area.

- Upon completion of excavation and placement of fill material, the shoreline shall contain no pits, potholes, or large depressions to avoid stranding of fish.
- An on-site inspection will be conducted no later than 30 days after the Action is complete.

11 BACKFILL EXCAVATION AREAS

After excavation of each trench segment and prior to tide inundation, each excavation will be back filled with clean 10-inch Streambed Cobbles per Section 9-03.11(2) of the Washington State Department of Transportation (WSDOT) handbook (beach material). The backfill will be placed from the bottom of the excavation to within 2 feet of the previous established beach grade. All excavations will be filled prior to tidal inundation. The backfill material will be a well-graded streambed cobble that passes all material smaller than 10 inches. No angular rock will be placed on the beach.

The top 2 feet of excavated area (for example, trench) and any area disturbed by eqnipment on the beach may be filled or covered with a clean, smaller beach material similar to Table 2.

Table 2

Fill and Cover for Backfill Excavation (Smaller Beach Material)

Sieve Size	Percent Passing by Weight
2-inch	100
1-inch	60 to 100
1/2-inch	30 to 50
3/8-inch minus	0 to 30

The preceding specifications satisfy the BMPs proposed by WDFW for backfill.

12 HANDLING, TRANSPORT, AND DISPOSAL OF PIPE AND SEDIMENTS

Once filled, the transfer box will be lifted to the upland staging area. Free water will be removed from each box prior to transport from the Site. A roll-off truck will be staged on site to move containers as needed. The box will be placed on a truck for delivery duiing daytime hours to a railroad loading facihty, and hauled by rail to a Subtitle D landflll for disposal. Pipe sections containing sludge will be placed in a separate box and stored on site during characterization of the sludge. A sample of sludge will be analyzed to determine proper disposal and prepare a separate waste profile, if necessary. Disposal of the pipe sections and sludge will be determined once profihng is completed.

13 PLACEMENT OF ORGANO-CLAY MAT

After completion of the excavation activities and backfilhng to establish original grades, an Organo-Clay mat will be placed over a portion of the sediments in the vicinity of the terminus of the abandoned pipe (Figme 4). Designed to adsorb low soluble organics (for example, oil and PAHs), the mat will have Organo-Clay encapsulated between two layers of geotextile. The Organo-Clay is formed by the modification of sodium bentonite with cationic surfactants. The Organo-Clay mat will immediately reduce the risk from product or sheening.

The mat will consist of panels that overlap approximately 1 foot with adjacent panels. Based on time hmitations and low tide elevations, it is expected that four 50-foot-by-15-foot panels can be placed starting at about -1 MLLW. Each panel will be staked in and then wlll then be extended 50 linear feet up slope from the -1 MLLW elevation. The actual lower elevation of the panels will be determined during construction based on Site conditions. Before the lower extent of the panels are immdated by the tide, clean beach material will be placed (moving up slope) at a nominal thickness of 12 inches (plus or minus 2-inches). This beach material acts as ballast, protects the Organo-Clay mat from wind and wave driven erosion, and creates a new habitat substrate. Additional panels will be available if Site conditions and tide windows warrant them.

Starting at the edge of the panels the beach material will be feathered for approximately another 10 feet (Figures 4 and 5). As described in Section 11, the beach material will be 10-inch Streambed Cobbles per Section 9-03.11(2) of the WSDOT handbook. This material is a well graded streambed cobble that passes all material smaller than 10 inches. Approximately 300 cubic yards of clean beach material will be used to replace the current substrate. Areas disturbed by equipment on the beach will be filled or covered with a smaller beach mix similar to the description in Section 11.

14 COMPLETION OF INCIDENT ACTION AND TIME CRITICAL REMOVAL ACTION

The Action will be deemed complete when the work activities described in Section 3.1 of this Work Plan are completed to the satisfaction of USCG (except for the post-completion inspections, which are described in more detail in Section 15). Within 30 days after completing the Action (that is, installation of the Organo-Clay mat), a report documenting the Action will be prepared and submitted to USCG for review and approval. Upon approval of the completion report, Cascade Natural Gas will request that USCG issue a written determination that the Order is satisfied. USCG plans to transfer lead agency status to EPA after completion of the Action.

The Action does not apply to areas of the Site other than the Action Area or to souces or release mechanisms other than the abandoned pipe. Future response actions will be required at the Site after completion of the Action. Such future actions wlll be conducted under one or more separate agreements with EPA or Ecology. These future actions will include determination of the natue and extent of the MGP waste, risk evaluations, the need for continued inspections or signage, and the assessment and identification of appropriate next steps.

15 POST-COMPLETION INSPECTIONS

After completion of the Action (that is, installation of the Organo-Clay mat), the in-water containment system will be repositioned around the Organo-Clay mat for an estimated four weeks. The in-water containment system wlll be inspected twice a week duning those four weeks. As part of those inspections, the inspection team will check the integrity of the new pipe plug. The containment system will be decommissioned if there is no observation of product or sheen on the water for four consecutive inspections. Inspections will continue once a week for an additional four months after decommissioning of the containment system (or longer, if directed by EPA) to ensure the new pipe plug is effective and no product or sheening is observed in the water. If such conditions are observed, additional actions will be discussed with EPA.

16 SCHEDULE

A proposed schedule of activities necessary to complete the Action is summarized in Table 3. Based on discussions with Cascade Natural Gas's contractor and depending on how the Action progresses, this schedule may be modified.

Table 3
Schedule of Incident Action and Time Critical Removal Action

Action Element	Start Date	Notes
Containment System Inspections – Cascade Natural Gas	Oct. 30, 2010 (during low tides)	USCG to be notified prior to inspections
Mapping, access analysis, and pipe surveying	Oct. 22, 2010	
Low tide inspection of visible pipe and access analysis	Oct. 23, 2010	
Utility locates performed in project area	Oct. 25, 2010	
Locate pipe as close to the bluff as possible	Oct. 27, 2010	Pipe determined to be greater than 7 feet below ground surface at toe of bluff. Pipe will be plugged 40 linear feet from bluff (Figure 4).
Pre-construction meeting	Nov. 4, 2010	Including Sesko and McConkey
Contractor mobilization, access improvements, and staging	Nov. 3-5, 2010	
Pipe removal, excavation, Organo-Clay mat placement, and beach material placement	Nov. 5-10, 2010	Construction to be completed between 2200 and 0600 due to low tides. Excavations to be backfilled prior to tidal inundation.
Material profile, handling, transport, and disposal (daytime)	Nov. 6-11, 2010	
Demobilization	Nov. 10-11, 2010	
Reporting of project completion, USCG Order satisfied, and future Site actions conducted under EPA or Ecology oversight.	Nov. 15, 2010	Completion report will be submitted 30 days after construction is complete. An on-site inspection will be conducted no later than 30 days after construction is complete (including WDFW Area Habitat Biologist).

FIGURES

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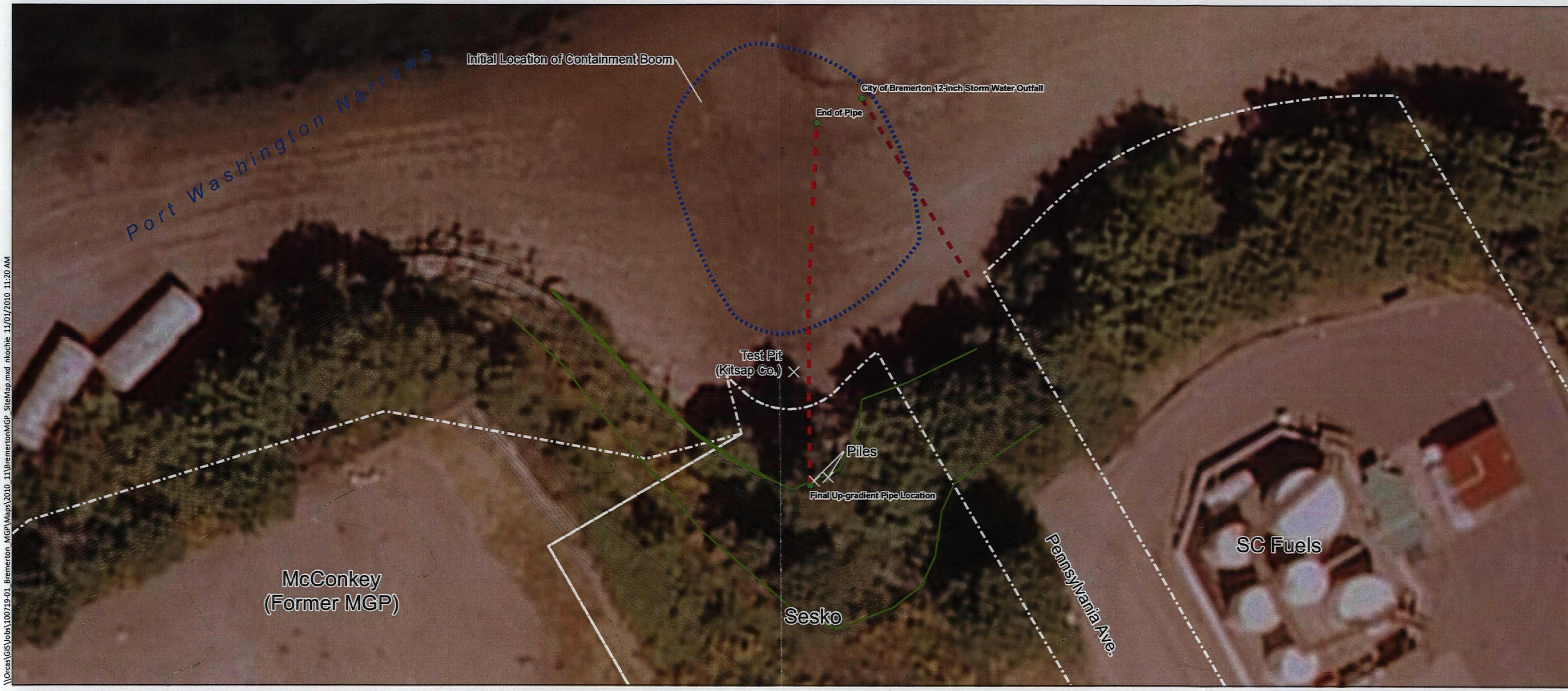


12-inch Concrete Pipe Configuration
Assumed City of Bremerton 12-inch Storm Water Pipe Configuration
Approximate Top of Bank
Concrete Rubble Wall (height varies)
Initial Location of Containment Boom

NOTES:
1. Horizontal Datum: WA State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.
3. Base data provided by Aspect Consulting.

Feet
0 15 30 45 60

ANCHOR QEA

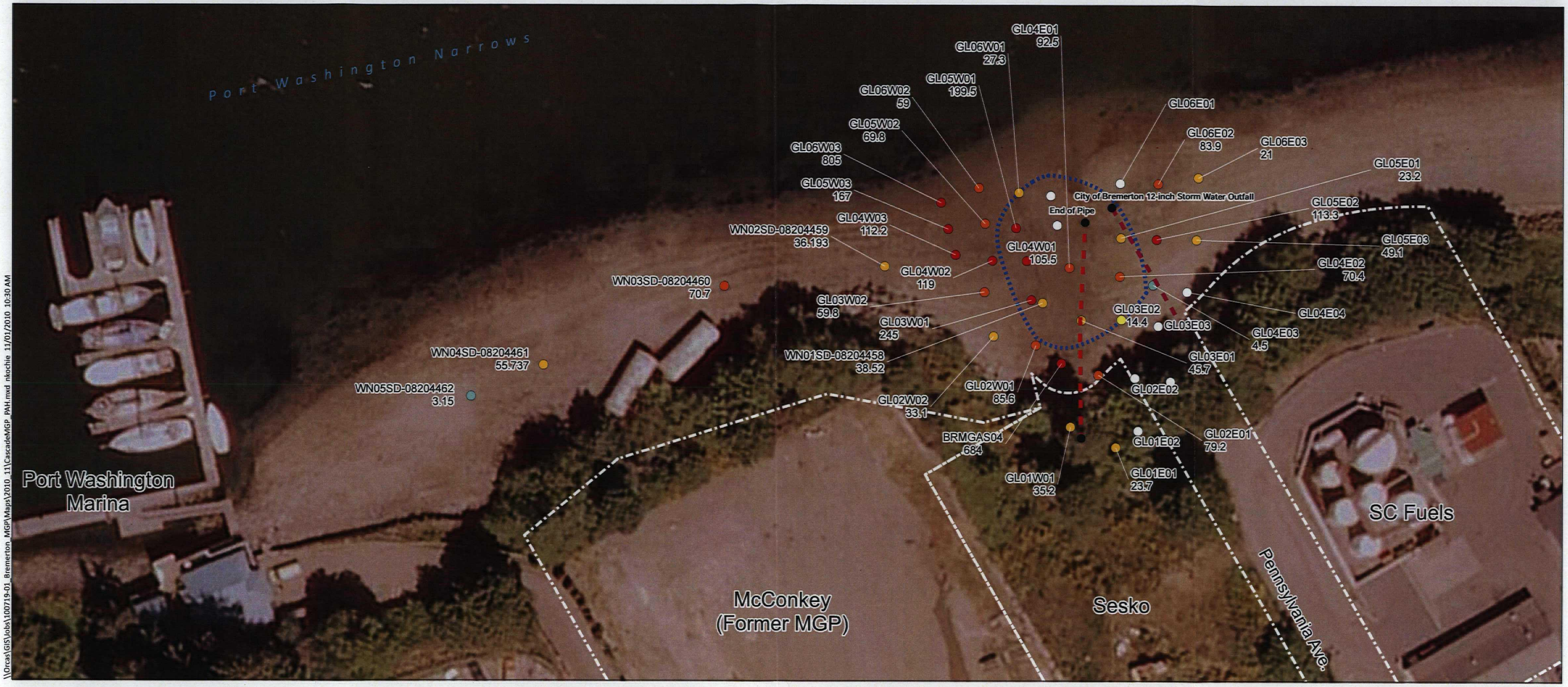
Figure 1
Site Map
Former Bremerton MGP Site
Bremerton, WA

ANCHOR QEA

NOTES:
1. Horizontal Datum: WA State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.
3. Base data provided by Aspect Consulting.

Feet
0 25 50 75 100

Figure 2
Site Access and Staging
Former Bremerton MGP Site
Bremerton, WA



\\Orcas\GIS\Jobs\100719-01_Bremerton_MGP\Maps\2010_11\CascadeMGP_PAH.mxd nkochie 11/01/2010 10:30 AM

Detected Total PAH Concentrations (mg/kg)

- No Data
- <1
- ≥1 - 10
- ≥10 - 20
- ≥20 - 50
- ≥50 - 100
- ≥100

- End of Pipe
- 12-inch Concrete Pipe Configuration
- Assumed City of Bremerton 12-inch Storm Water Pipe Configuration
- Approximate Location of Containment Boom

Feet

0 25 50 75 100

NOTES:
1. Horizontal Datum: WA State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.
3. Base data provided by Aspect Consulting.
4. Total PAH sample data provided by Aspect Consulting and EPA. Locations are approximate.

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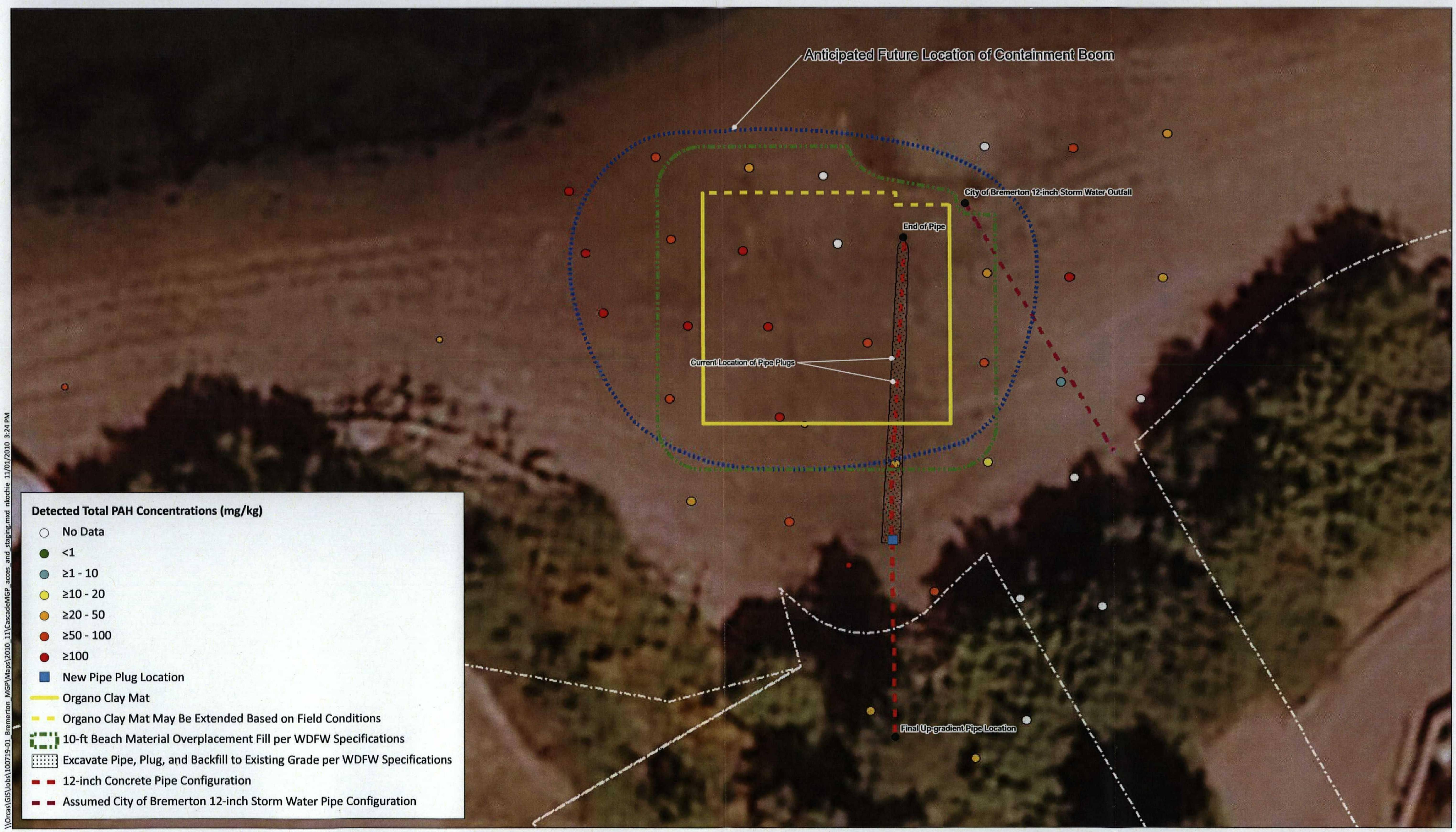
Figure 3
Total PAH Sediment Sample Locations
Bremerton Former MGP Site
Bremerton, WA

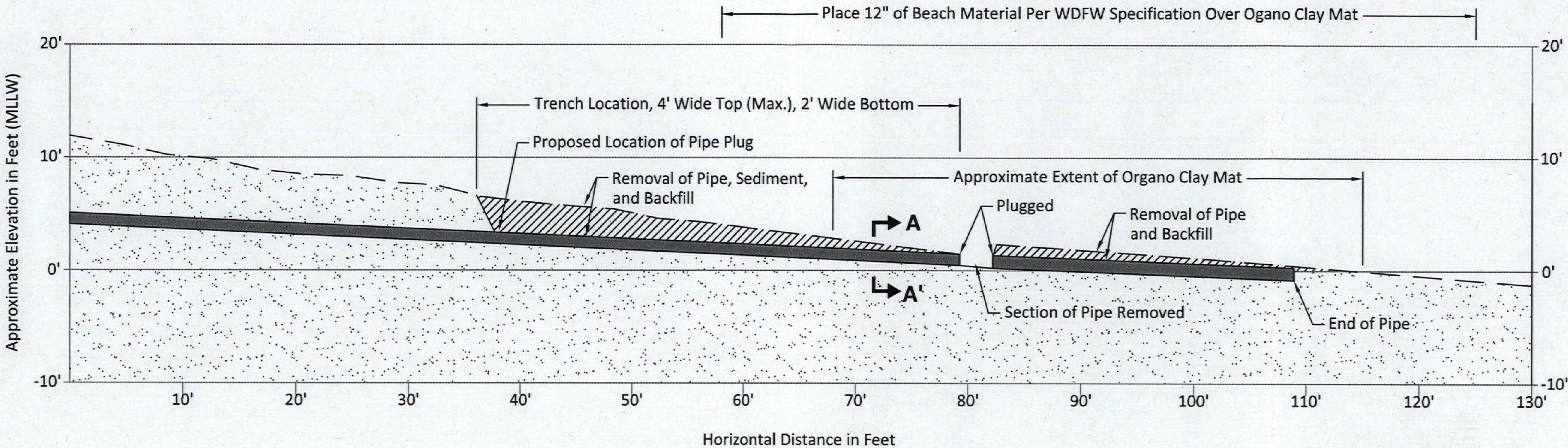


ANCHOR QEA

NOTES:
1. Horizontal Datum: WA State Plane North Zone, NAD83, Feet.
2. Aerial photo © 2007 ESRI, i-cubed.
3. Base data provided by Aspect Consulting.

Feet
0 10 20 30 40

Figure 4
Pipe Removal and Mat Placement Plan
Former Bremerton MGP Site
Bremerton, WA



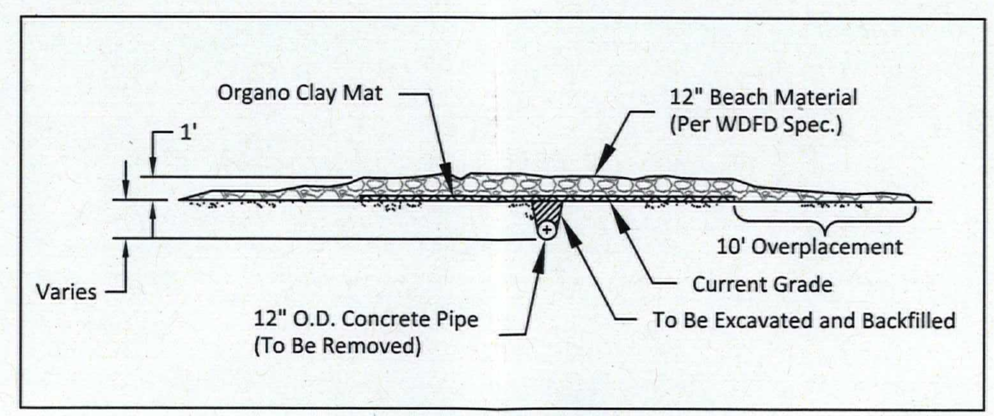
LEGEND:

Existing Mudline

12" Outside Diameter Concrete Pipe (4 Foot Sections)

NOTES:

1. Elevation estimated (MLLW).
2. Depths to top of pipe from probing performed on October 26, 2010 by Anchor QEA, Aspect, Cascade, and USCG.



Cross Section A-A'
Not to Scale

K:\Jobs\100719 - Cascade MGP\100719-01\10071901-RP-002 (BEACH-SECTION).dwg Figure 5

Nov 01, 2010 3:42pm dholmer

ANCHOR QEA

Figure 5
Beach Profile TCRA and Incident Action Summary
Former Bremerton MGP Site
Bremerton, WA

APPENDIX A
HEALTH AND SAFETY PLAN

APPENDIX A

HEALTH AND SAFETY PLAN

FORMER BREMERTON MGP SITE
INCIDENT ACTION AND TIME CRITICAL REMOVAL ACTION

Prepared for
U.S. Coast Guard Sector Puget Sound

On behalf of
Cascade Natural Gas Corporation

Prepared by
Anchor QEA, LLC, and
Aspect Consulting

October 2010

APPENDIX A
HEALTH AND SAFETY PLAN

WORK PLAN
FORMER BREMERTON MGP SITE
INCIDENT ACTION AND TIME CRITICAL REMOVAL ACTION

Prepared for

U.S. Coast Guard Sector Puget Sound
Incident Management Division
1519 Alaskan Way S. Building 4
Seattle, Washington 98134

On behalf of

Cascade Natural Gas Corporation
8113 West Grandridge Boulevard
Kennewick, Washington 99336-7166

Prepared by

Anchor QEA, LLC
1423 3rd Avenue, Suite 300
Seattle, Washington 98101

Aspect Consulting
401 Second Avenue South, Suite 201
Seattle, Washington 98104

October 2010

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1 INTRODUCTION

Discovery of an abandoned and broken pipe in the intertidal area adjacent to the Former Bremerton Manufactured Gas Plant (MGP) and bulk fuel properties (collectively, the Site) led to a determination by U.S. Coast Guard (USGS) and U.S. Environmental Protection Agency (EPA) that a cleanup adjacent to the Site is necessary to protect the public health, welfare, or the environment. Accordingly, Cascade Natural Gas Corporation (Cascade Natural Gas) is entering into an Administrative Order on Consent (AOC) with the USCG and EPA and to implement the Incident Action and Time Critical Removal Action (collectively, Action) under oversight of the USCG and EPA.

This Health and Safety Plan (HASP) is designed to protect Anchor QEA, LLC, personnel from physical, chemical, and other hazards posed by site investigation and field sampling efforts detailed at the Site. Field activities covered under this HASP include Site investigation, subsurface sediment sampling, and construction oversight activities.

2 SITE DESCRIPTION AND PROJECT SCOPE

The Site is located on the north shore of Dyes Inlet in Bremerton, Washington, between Thompson and Pennsylvania Avenues in West Bremerton. Land use in the Site area is currently industrial and light commercial. Recently, a 12-inch concrete pipe in the intertidal area was observed to be the apparent source of product and intermittent sheens on surface water of Dyes Inlet.

Currently, the project scope consists of Site reconnaissance, sediment sampling (from shore), and potential construction activities to further assess the pipe location and condition and to remove the pipe and affected sediments.

No known investigations have been conducted at the Site. As such, previous experience at MGP sites is relied upon to conservatively base the information provided in this HASP.

3 EMERGENCY RESPONSE PLAN

Because of the health and safety hazards associated with the field sampling and sample handling activities, the potential exists for an emergency to occur. Emergencies may include personal injury, exposure to hazardous substances, fire, explosion, or release of toxic or non-toxic substances (spills). Occupational Safety and Health Administration (OSHA) regulations require that an emergency response plan be available for use onboard to guide actions in emergencies.

Onshore organizations will be relied upon to provide response in emergencies. The local fire department and ambulance service can provide timely response. Anchor QEA personnel and subcontractors will be responsible for identifying an emergency, providing first aid if applicable, notifying the appropriate personnel or agency, and evacuating any hazardous area. Sampling personnel will attempt to control only very minor hazards that could present an emergency, such as a small fire, and will otherwise rely on outside emergency response resources.

The following subsections address key safety personnel, authority and responsibilities of key personnel, and pre-emergency preparation; identify individual(s) who should be notified in case of emergency; provide a list of emergency telephone numbers; offer guidance for particular types of emergencies; and provide directions and a map for getting from the Site to a hospital.

3.1 Key Safety Personnel

The following people share responsibility for health and safety at the Site. The next section includes a description of the role and responsibility of each.

Project Manager: Mark Larsen	Office: 206-287-9130 Cell: 206-310-2263
Field Coordinator: TBD	Office: TBD Celh TBD
Site Supervisor: TBD	Office: TBD Cell: TBD
Site Safety and Health Officer: Ed Berschinski	Office: 206-287-9130 Cell: 206-819-6009
Field Personnel: Nathan Soccorsy Chris Torell	Cell: 480-272-2805 Cell: 315-254-4954

3.2 Authority and Responsibilities of Key Personnel

This section describes the authority and responsibilities of key Anchor QEA personnel. The names and contact information for the following key safety personnel are listed in the previous section of this HASP. Should key site personnel change during the course of the project, a new list will be established and posted immediately at the Site. The emergency phone nmnber for the Site is 911 and should be used first for all medical, fire, and pollce emergencies.

3.2.1 Project Manager

The project manager (PM) provides overall direction for the project and is responsible for ensuring that the project meets the client's objectives in a safe and timely manner. The PM is responsible for providing qualified staff for the project and adequate resources and budget for the health and safety staff to carry out their responsibilities during the field work. The PM is in regular contact with the field coordinator (FC; see Section 3.2.2) and site safety and health officer (SSHO; see Section 3.2.3) to ensure that appropriate health and safety procedures are implemented into each project task.

The PM has authority to direct response operations; the PM assumes total control over project activities but may assign responsibility for aspects of the project to others. In addition, the PM:

- Oversees the preparation and organization of background review of the project, the work plan, and the field team
- Ensures that the team obtains permission for site access and coordinates activities with appropriate officials
- Briefs the FC and field personnel on specific assignments
- Together with the FC, sees that health and safety requirements are met
- Consults with the SSHO regarding unsafe conditions, incidents, or changes in site conditions or the scope of work

3.2.2 Field Coordinator

The FC reports to the PM and has authority to direct response operations and assumes control over on-site activities. The FC will direct field activities, coordinate the technical and health and safety components of the field program, and is responsible in general for enforcing the HASP and Corporate HASP. The FC will be the primary point of contact for all field personnel and visitors and has direct responsibility for implementation and administration of this HASP. The FC and any field personnel have the authority to stop or suspend work in the event of an emergency, if conditions arise that pose an unacceptable health and safety risk to the personnel or environment, or if conditions arise that warrant revision or amendment of this HASP.

The functions of the FC related to this HASP include but are not necessarily limited to the following:

- Conduct and document daily safety meetings, or designate an alternate FC in his or her absence
- Execute the work plan and schedule
- Periodic field health and safety inspections to ensure compliance with this HASP
- Oversee implementation of safety procedures
- Implement worker protection levels

- Enforce site control measures to ensure that only authorized personnel are allowed on site
- Notify, when necessary, local public emergency officials (all personnel on site may conduct this task as needed)
- Follow-up on incident reports to the PM
- Periodically inspect protective clothing and equipment for adequacy and safety compliance
- See that protective clothing and equipment are properly stored and maintained
- Perform or oversee air monitoring in accordance with this HASP
- Maintain and oversee operation of monitoring equipment and interpretation of data from the monitoring equipment
- Monitor workers for signs of stress, including heat stress, cold exposure, and fatigue.
- Require participants to use the "buddy" system
- Provide (via implementation of this HASP) emergency procedures, evacuation routes, and telephone numbers of the local hospital, poison control center, fire department, and police department
- Communicate incidents promptly to the PM
- Maintain communication with the SSHO on site activities
- If applicable, ensure decontamination and disposal procedures are followed
- Maintain the availability of required safety equipment
- Advise appropriate health services and medical personnel of potential exposures.
- Notify emergency response personnel in the event of an emergency. Coordinate emergency medical care

The FC will record health-and-safety-related details of the project in the field logbook. At a minimun, each day's entries must include the following information:

- Project name or location
- Names of all on-site personnel
- Level of personal protective equipment (PPE) worn and any other specifics regarding PPE
- Weather conditions
- Type of field work being performed

The FC will have completed the required OSHA 40-hour HAZWOPER training and annual updates, the 8-hour Supervisor training, current first aid and cardiopulmonary resuscitation (CPR) training, and medical monitoring clearance, if applicable. Other certifications or training may be stipulated based on client or site requirements.

3.2.3 Site Safety and Health Officer

Anchor QEA's SSHO will be responsible for managing on-site health and safety activities and will provide support to the PM and FC on health and safety issues. The specific duties of the SSHO are to:

- Provide technical input into the design and implementation of this HASP.
- Advise on the potential for occupational exposure to project hazards, along with appropriate methods and/or controls to eliminate site hazards.
- Ensure that a hazard assessment has been performed and that the adequacy of the PPE selected was evaluated as required by 29 CFR 1910.132(d), 1910.134, 1926.25, and 1926.55, and is duly noted by the signatures and date appearing on the Certification Page of this document.
- Consult with the FC on matters relating to suspending site activities in the event of an emergency.
- Verify that all on-site Anchor QEA personnel and subcontractors have read and signed the HASP Acknowledgement Form.
- Review daily the on-site health and safety activities for effectiveness and modify as needed.
- Verify that corrective actions resulting from deficiencies identified by daily health and safety reviews and observations are implemented and effective.

The SSHO will have completed the required OSHA 40-hour HAZWOPER training and annual updates, the 8-hour Supervisor training, and have medical monitoring clearance, if applicable. In addition, the SSHO will have current training in first aid and CPR.

3.2.4 Field Personnel

All project field personnel will attend a project-specific meeting conducted by the FC concerning safety issues and project work task review before beginning work. All field personnel must be familiar with and comply with this HASP. Subcontractors will be responsible for developing and complying with their own company HASP. The field personnel have the responsibility to immediately report any potentially unsafe or hazardous conditions to the FC. All members of the field personnel have the authority to stop or suspend work if conditions arise that pose an unacceptable health and safety risk to the field personnel or environment or if conditions arise that warrant revision or amendment of this HASP.

The field team reports to the FC for on-site activities and is responsible for

- Reviewing and maintaining a working knowledge of this HASP
- Safe completion of on-site tasks required to fulfill the work plan
- Compliance with the HASP
- Attendance and participation in daily safety meetings
- Notification to the FC of existing or potential safety conditions at the site
- Reporting all incidents to the FC
- Demonstrating safety and health conscious conduct

3.3 Pre-emergency Preparation

Before the start of field activities, the FC will ensure that preparation has been made in anticipation of emergencies. Preparatory actions include the following:

- All field personnel meeting with the FC concerning the emergency procedures in the event that a person is injured. Appropriate actions for specific scenarios will be reviewed. These scenarios will be discussed and responses determined before the sampling event commences.
- A training session given by the FC informing all field personnel of emergency procedures, locations of emergency equipment and their use, and proper evacuation procedures.
- A training session given by senior staff operating field equipment, to apprise field personnel of operating procedures and specific risks associated with that equipment.
- Ensuring that field personnel are aware of the existence of the emergency response plan, its location, and ensuring that a copy of the HASP accompanies the field team(s).

3.4 Project Emergency Coordinator

The FC will serve as the project emergency coordinator (PEC) in the event of an emergency. The FC will designate a replacement for times when he is not onboard or is not serving as the PEC. The designation will be noted in the logbook. The PEC will be notified immediately when an emergency is recognized. The PEC will be responsible for evaluating the emergency, notifying the appropriate emergency response units, coordinating access with those units, and directing interim actions onboard before the arrival of emergency response units. The PEC will notify the SSHO and the PM as soon as possible after initiating an emergency response action. The PM will have responsibility for notifying the client.

3.5 Emergency Response Contacts

All personnel must know whom to notify in the event of an emergency, even though the FC has primary responsibility for notification. Table 1 lists the names and phone nunbers for emergency response services and individuals.

Table 1
Emergency Response Contacts

Emergency Phone Numbers		
Ambulance	911	
Fire	911	
Police	911	
Poison Control	1-800-222-1212	
Project Manager	David Templeton	Office: 206-287-9130
Field Coordinator	TBD	
Corporate Health and Safety Manager	David Templeton	Office: 206-287-9130 Cell: 206-910-4279
National Response Center	1-800-424-8802	
State Emergency Response System	911	
EPA Environmental Response Team	1-201-321-6600	

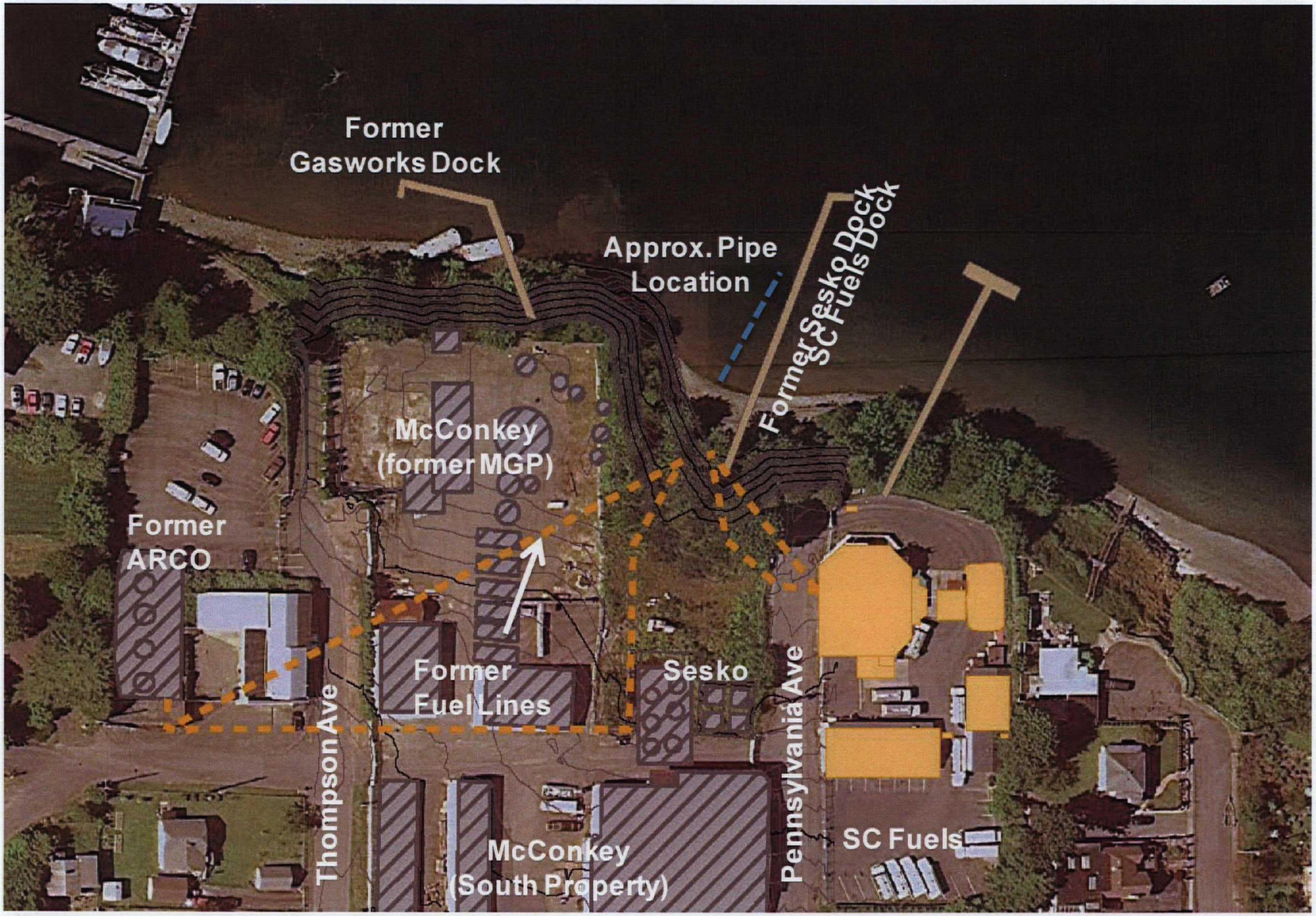
Notes:
In the event of any emergency, the PM, FC, SSHO, or any field personnel may contact emergency responders listed In this table.

3.6 Emergency Response and Alerting Procedures

Each field team will carry a cell phone and an air horn that are in good working order. Cell phone coverage is good at the Site. Site communications will be done with either a cell phone or the air horn. If there is any type of emergency that requires Site evacuation (for example, a severe thunderstorm), the FC or any other site personnel recognizing the condition will blow the air horn three times. When the horn sounds, all personnel will meet at the end of Pennsylvania Avenue (Figure 1). All other emergency notifications that do not require evacuation will be conducted using a cell phone. Emergency phone numbers are listed in Table 1.

In the event of an emergency, immediate action must be taken by the first person to recognize the event. The following steps will be used as a guideline:

- Survey the situation to ensure that it is safe for you and the victim. Do not endanger your own life. Do not enter an area to rescue someone who has been overcome unless properly equipped and trained. Ensure that all protocols are followed. If applicable, review Material Safety Data Sheets (MSDS) to evaluate response actions for chemical exposures.
- Call the appropriate emergency number (911) or direct someone else to do this immediately (see Section 3.1). Explain the physical injury, chemical exposure, fire, or release and location of the incident.
- Have someone retrieve the nearest first aid kit.
- Decontaminate the victim without delaying life-saving procedures (see Section 3.8).
- Administer first aid and CPR, if properly trained, until emergency responders arrive.
- Notify the PM and the FC.
- Complete the appropriate incident investigation reports.



ANCHOR QEA

Figure 1
Site Location Map
Health and Safety Plan
Former Bremerton MGP Site

3.7 Recognition and Prevention of Emergency Situations

Everyone on-site is responsible to monitor the environment for conditions that could lead to a release or an injury. Emergencies will generally be recognizable by observation. The Site team mtist take steps needed to respond to such observations. An injury or illness wlll be considered an emergency if it requires treatment by a medical professional and carmot be treated with simple first-aid techniques.

3.8 Decontamination

In the case of evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. If an injured individual is also heavily contaminated and must be transported by emergency vehicle, the emergency response team will be told of the type of contamination. To the extent possible, contaminated PPE will be removed, but only if doing so does not exacerbate the injury. Plastic sheeting will be used to reduce the potential for spreading contamination to the inside of the emergency vehicle.

3.9 Fire

Personnel will attempt to control only small fires, should they occur. If an explosion appears likely, personnel will follow evacuation procedures specified by the FC in the training session. If a fire cannot be controlled with a fire extinguisher that is part of the required safety equipment, personnel will either withdraw from the vicinity of the fire or use additional firefighting equipment, or evacuate the upland area as specified by the FC in the training session.

3.10 Personal Injury

In the event of serious personal injury, including ımconsciousness, possibility of broken bones, severe bleeding or blood loss, burns, shock, or trauma, the first responder will immediately do the following:

- Administer first aid, if qualified.
- If not qualified, seek out an individual who is qualified to administer first aid, if time and conditions permit.

- Notify the PEC of the incident, the name of the individual, the location, and the nature of the injury.

The PEC will immediately do the following:

- Notify the appropriate emergency response organization.
- Assist the injured individual.
- Follow the emergency procedures for retrieving or disposing equipment reviewed in the training session, and leave the Site en route to the predetermined land-based emergency pick-up.
- Designate someone to accompany the injured individual to the hospital.
- If an emergency (for example, broken bones or injury where death is imminent without immediate treatment) occurs, the FC will call 911 and arrange to meet the response unit at the nearest accessible dock.
- Notify the SSHO and the PM.

If the PEC determines that emergency response is not necessary, he may direct someone to decontaminate and transport the individual by vehicle to the nearest hospital. Directions and a map showing the route to the hospital are on Figure 2.

If a worker leaves the Site to seek medical attention, another worker should accompany him or her to the hospital. When in doubt about the severity of an injury or exposure, always seek medical attention as a conservative approach and notify the PEC.

The PEC will have responsibility for completing all accident/incident field reports, OSHA form 200s, and other required follow-up forms.

Harrison Bremerton Medical Center
2520 Cherry Avenue
Bremerton, WA 98310
360-744-3911

Directions from Site (A) to hospital (B):

1. Head south on Pennsylvania Ave toward 15th Street.
2. Turn left at 15th Street.
3. Take the first right onto High Avenue.
4. Take the third left onto 11th Street.
5. Turn left at Warren Avenue.
6. Continue onto Warren Avenue Bridge.
7. Turn right at Sheridan Road.
8. Take the second right onto Cherry Avenue. Destination will be on the left.

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Figure 2
Map to the Nearest Hospital
Health and Safety Plan
Former Bremerton MGP Site

3.11 Overt Personal Exposure or Injury

If an overt exposure to toxic materials occurs, the first responder to the victim will initiate actions to address the situation. The following actions shoudd be taken, depending on the type of exposure:

- Skin Contact:
  - Wash/rinse the affected area thoroughly with copious amounts of soap and water.
  - If eye contact has occurred, eyes should be rinsed for at least 15 minutes using the eyewash that is part of the emergency equipment onboard and in the lab.
  - After initial response actions have been taken, seek appropriate medical attention.
- Inhalation:
  - Move victim to fresh air.
  - Seek appropriate medical attention.
- Ingestion:
  - Seek appropriate medical attention.
- Pmcture Woumd or Laceration:
  - Seek appropriate medical attention.

3.12 Spills and Spill Containment

As necessary, spill control measures will be used to contain contaminated materials that may enter into clean areas. Plastic sheeting, sorbent pads, sorbent booms, or a spill control system will be used to prevent spills and contain contaminated material.

If a spill occurs, the SSHO will immediately discuss the event with USCG, EPA, or their oversight contractor to evaluate the need for reporting. Any spill will be reported consistent with state and federal law. In the case of a reportable spill, the National Response Center (800-424-8802) and the Washington State Emergency Response System (911) will be notified by the SSHO or the PM.

4 HAZARD EVALUATION AND CONTROL MEASURES

This section covers potential chemical and physical hazards that may be associated with the proposed field activities and presents control measures to address these potential hazards. Section 4.4 presents the activity hazard analysis, which lists the potential hazards associated with each site activity and the recommended site control to be used to minimize each potential hazard.

4.1 Exposure Routes

Potential routes of exposure to chemicals include inhalation, dermal contact, and ingestion of dust, mist, gas, vapor, or liquid. Exposure will be minimized by using safe work practices and by wearing the appropriate PPE. Further discussion of PPE requirements is presented in Section 7.

4.1.1 Inhalation

Inhalation of particulates, dust, mist, gas, or vapor during the planned activities is possible. Whenever possible, the work activity will be oriented so that personnel are upwind of the location. An organic vapor monitor (OVM), a photoionization detector (PID), or flame ionization detector (FID) will be used to monitor ambient air in the breathing zone within the work area for organic compoumds. Table 2 describes air monitoring action levels and response procedures. A daily air monitoring log form is presented in Attachment 1.

Table 2
Air Monitoring Action Levels

Instrument	Job Tasks/Functions	Measurement	Monitoring Schedule [1]	Actions [2]
OVM, FID, and/or PID (11.7*eV lamp) - Measures Total Organic Vapors	Conduct continuous air monitoring for volatile organic compounds during activities where contaminated media are present. Make sure that a background reading is taken before the start up of activities and periodically thereafter.	Sustained (for 2 minutes) 0 to 5 ppm above background in breathing zone	Continuous (logging periodically every 15 to 30 minutes)	Continue work
		Sustained (for 2 minutes) greater than 5 ppm above background	Continuous (logging periodically every 15 minutes)	Stop work if sustained readings for longer than 2 minutes.[3] Institute engineering controls. If concentrations decrease to below 1 ppm above background, continue work. If concentrations above 5 ppm persist, stop work and contact the project manager (PM) for further instructions.

Notes:
ppm parts per million
Instruments must be calibrated according to manufacturer's recommendations.
1 Monitoring frequency is at beginning of each task and continuously thereafter (logging periodically every 15 minutes), or when detectable sediment contamination is encountered (as indicated by strong, sustained odor, visual evidence of product or petroleum discolored soils). Air monitoring frequency may be changed based on obtained air data for a work task.
2 For VOCs, sustained reading for greater than 2 minutes in excess of the action level will trigger a protective measure.
3 Contact with the PM must be made prior to continuing work. A hazard review must be conducted before proceeding with work.

4.1.2 Dermal Contact

Dermal contact with potentially contaminated soil, sediment, or groundwater operations is possible. Direct contact will be minimized by using appropriate PPE and decontamination procedures.

4.1.3 Ingestion

Ingestion of contaminants is a less likely route of exposure than inhalation or dermal contact for many of the contaminants of concern. Direct ingestion of contaminants can occur by inhaling airborne dust, mist, or vapors or swallowing contaminants trapped in the upper respiratory tract. Indirect ingestion can occur by introducing the contaminants into the mouth by way of food, tobacco, fingers, or other carriers. Although ingestion of contaminants can occur, proper decontamination/contamination reduction procedures should eliminate the probability of this route of exposure.

4.2 Chemical Hazards

Metals, volatile organic compounds (VOCs), petroleum hydrocarbons, polycychc aromatic hydrocarbons (PAHs), and free product (that is, coal tar) typically sourced from MGP activities may be present in sediments at the Site. In addition, there is some potential for exposure to hexane, acetone, or non-phosphate soap (that is, Alconox), which in some cases may be used as a decontamination materials. Material Safety Data Sheets (MSDSs) for potential chemical hazards are included in Attachment 2.

4.2.1 Volatile Organic Compounds

Based on previous experience at MGP sites, VOCs possibly present at the Site include volatile components of gasoline [benzene, toluene, ethylbenzene, and xylenes (BTEX)]. The primary exposure routes for VOCs during the plarmed activities are inhalation, dermal contact, and ingestion of contaminated soil, sediment, dust, or water. VOCs readily volatihze and are primarily an inhalation concern. BTEX compounds are known or suspected human carcinogens. MSDSs for BTEX are included in Attachment 2.

An OVM will be used to monitor ambient air and the breathing zone for VOCs. Respiratory protection will be employed if elevated levels of organic compounds are measured by the

OVM, if odors are present, or other conditions warrant its use. Air monitoring action levels are presented in Table 2.

4.2.2 Metals

The primary exposure routes for metals potentially during the planned activities are inhalation or ingestion of dust particles. Metals may also be indirectly ingested, as described in Section 4.1.3. A secondary route of exposure to metals is dermal contact. The target organs primarily affected by prolonged exposure to metals are the respiratory tract, gastrointestinal tract, central nervous system, kidneys, and liver.

Prolonged exposure to metals through any of the potential routes of exposure is not expected. Skin will be washed immediately when exposed to soil, sediment, dust, or water potentially impacted by metals.

4.2.3 Total Petroleum Hydrocarbons

Total petroleum hydrocarbons (TPHs) possibly at the Site include tar and oil related materials in sediments and soils, which contain benzene and aromatic hydrocarbons. Gasoline, diesel, fuel, and waste oil, and heavier hydrocarbons such as grease may also be present associated with sampling equipment. The primary exposure routes for petroleum hydrocarbons during the planned activities are inhalation, dermal contact, and ingestion of contaminated soil, sediment, dust, or water. Lighter petroleum hydrocarbons such as gasoline and benzene readily volatihze and are primarily an inhalation concern (as described in Section 4.2.1), whereas the primary route of exposure to heavier petroleum hydrocarbons such as aromatic hydrocarbons, oil, and grease is dermal contact. The target organs primarily affected by prolonged exposure to petroleum hydrocarbons are the respiratory system, central nervous system, kidneys, liver, and skin. Prolonged dermal contact with petroleum hydrocarbons can cause irritation or dermatitis. MSDSs for TPH are included in Attachment 2.

As described in Section 4.2.1, an OVM will be used to monitor ambient air and the breathing zone for TPH compounds that have volatized. Respiratory protection will be employed if elevated levels of organic compounds are measured by the OVM, if odors are present, or other conditions warrant its use. Air monitoring action levels are presented in Table 2.

Petroleum hydrocarbons such as gasoline are also flammable and can be a physical hazard when present in high concentrations. Physical hazards associated with flammable compounds are addressed in Section 4.3.10. Combustion of petroleum hydrocarbons can produce carbon dioxide, carbon monoxide, aldehydes, fumes, smoke (particulate matter), and other products of incomplete combustion. Intentional and inadvertent combustion of petroleum hydrocarbons is not expected during sampling activities; however, personnel will be removed from the area should a fire occur.

4.2.4 Polycyclic Aromatic Hydrocarbons

PAHs are petroleum hydrocarbons which are relatively nonvolatile due to their complex molecular structure and high molecular weight. Consequently, the primary route of exposure to PAHs is through dermal contact. PAHs may also be indirectly ingested, as described in Section 4.1.3. Inhalation of PAHs is unlikely due to their nonvolatile nature. Dermal or eye contact with PAHs can cause irritation or burning. MSDSs for PAHs are included in Attachment 2.

4.2.5 Hydrogen Sulfide

Hydrogen sulfide is a naturally occurring gas often associated with organic clay and peat. Hydrogen sulfide gas is potentially toxic through inhalation, ingestion, and contact with the skin and eyes. Inhalation can result in respiratory irritation, rhinitis, and edema of the lungs. Inhalation of hydrogen sulfide gas can result in headache, dizziness, and agitation. Acute exposure at high concentrations may result in coma and death because of respiratory failure. Hydrogen sulfide gas has a distinct rotten egg odor and, although not expected, will be noted if encountered in the field. MSDSs for hydrogen sulfide are included in Attachment 2.

4.3 Physical Hazards

4.3.1 Slips, Trips, and Falls

As with all fieldwork sites, personnel should exercise caution to prevent slips on slick surfaces. In particular, sampling near or conducting construction observation activities around excavations require careful attention to minimize the risk of falling down. The same care should be used in rainy conditions. Wearing boots with good tread, made of material that does not become overly slippery when wet, can minimize slips.

Trips are always a hazard on t uneven surfaces or in a cluttered work area. Personnel will keep work areas as free as possible from items that interfere with walking and movement. See Section 4.3.5 for more details on uneven surfaces.

Falls may be avoided by working as far away from exposed edges as possible. For this project, the potential for falling is associated primarily with sediment sampling activities and construction management. Personnel will keep walkways and work areas clear when possible and use caution when walking along the shoreline and the riverbank slope.

4.3.2 Fatigue

Since personnel may be working during both daytime and nighttime hours (depending on the activity) 5 to 7 days a week, it is important that all personnel are aware of the hazards related to fatigue. Fatigue can occur at any time when working and may cause safety concerns due to decreased manual dexterity, reaction time, and alertness. The following section is provided to help, prevent, detect, and address fatigue-related issues.

Fatigue can be defined as an increasing difficulty in performing physical or mental activities. Signs of fatigue may include tiredness, changes in behavior, loss of energy, and the reduced ability to concentrate. Fatigued workers may have a reduced ability to recognize or avoid risks on the work site, which may lead to an increase in the number and severity of injuries and other incidents.

Fatigue results from insufficient rest and sleep between activities. Contributing factors to fatigue may include:

- The time of day that work takes place
- The length of time spent at work and in work-related duties
- The type and duration of a work task and the environment (such as, weather conditions and ambient noise) in which it is performed
- The quantity and quality of rest obtained prior to, during, and after a work period
- Non-work activities
- Individual factors such as sleeping disorders, medications, or emotional state

Personnel suffering from fatigue may exhibit both physical and mental effects, such as:

- Slower movements
- Poor coordination
- Slower response time to interaction
- Bloodshot eyes
- Slumped or weary appearance
- Nodding off
- Distractedness or poor concentration
- Inability to complete tasks
- Fixed gaze
- Appearing depressed, irritable, frustrated, or disinterested

Fatigue may cause an increased risk of incidents due to tiredness and lack of alertness. When workers are fatigued, they may be more likely to exercise poor judgment and have slower reactions to external and internal stimuli. This may increase all risks on site because fatigued workers may be less able or likely to respond effectively to changing circumstances, leading to an increased likelihood of incidents due to human error.

To stress the importance of managing fatigue, this topic will be covered in pre-work meetings and will include a discussion of what fatigue is, why it is hazardous, signs and symptoms, and ways to control or mitigate it. Employees will be strongly encouraged to get sufficient pre-work rest, to maintain sufficient nutritional intake during work (that is, eat and drink at regular intervals), and to communicate with team members and leaders if their level of fatigue elevates.

Fatigue management can usually be assisted through the performance of a routine exercise program and an established regular sleep schedule. Workers will be informed that the occurrence of a good night's sleep can be enhanced by avoiding heavy meals or caffeine and minimizing or eliminating the consumption of alcohol and nicotine.

Workers will be periodically observed and directly queried for signs or symptoms of fatigue. Workers that express concern over their level of fatigue, or are observed to be fatigued such that elevated worker risk is evident, will be relieved or their work tasks adjusted so that they may rest sufficiently.

Consistent with applicable labor laws, individuals will not be scheduled to work more than 16 hours (including travel time) in any 24-hour period. Work schedules will consider fatigue factors and optimize continuous periods available for uninterrupted sleep. The employee is responsible for reporting to work properly rested and fit for duty. All personnel will be scheduled to receive a minimum of 8 hours of rest (that is, no work-related tasks) in any 24-hour period. In case of an emergency or operational difficulties (for example, access due to water levels), work hours may require adjustment, with worker consent.

4.3.3 Soil and Sediment Sampling Equipment

Sediment samples will be collected using a hand auger or tripod mounted direct push machine. Prior to initiation of sampling, there will be a training session for all field personnel pertaining to the equipment that will be used.

4.3.4 Precautions When Working Around Heavy Equipment

The following precautions will be taken to minimize heavy equipment hazards:

- All equipment must have back-up alarms.
- Personnel must make eye contact with the operator before approaching the equipment and remain safely outside the swing radius of the equipment.

- Persormel must wear orange visibility vests in addition to standard Level D or modified Level D PPE.
- Personnel must never stand on track-hoe tracks to communicate with the operator.
- Operators must be aware of persormel in the area and use proper hand signals before maneuvering.
- Operators must wear hard hats when operating machines and when going to and from their equipment.
- Operators must use spotters and be cautious when maneuvering equipment within 15 feet of overhead power hnes and utihty pole guy wires, and maintain safe distances at all times (greater than 10 feet).
- Provisions will be made to prevent the tmauthorized start-up of eqtiipment when personnel leave the Site at the end of the shift, such as battery ignition locks.

4.3.6 Uneven Work Surfaces

Slips and trips on uneven surfaces such as an excavation edge or beach slope can be particularly hazardous. Care will be taken when setting up equipment near excavations or along the shore to provide an area for field personnel working on or near the equipment. Wearing boots with good tread that are made of material that does not become overly slippery when wet can minimize shps. Sturdy work gloves shall be worn to protect the hands against sharp or rough rocky surfaces.

4.3.6 Manual Lifting and Material Handling

Equipment and samples must be lifted and carried along the shoreline. Back strain can result if hfting is done improperly. During any manual handling tasks, personnel should lift with the load supported by their legs and not their backs. For heavy loads, an adequate number of people will be used, or if possible, a mechanical lifting/handling device. Leather gloves will be worn when handling metal, wire rope, sharp debris, or transporting material (for example, wood, piping, or drums).

4.3.7 Heat Stress

Scheduled samphng operations will be occurring in late fall, and the potential for high temperatures exists. The potential for heat stress may occur if impermeable PPE is worn or if strenuous work is performed under hot conditions with inadequate water. When the core body temperature rises above 100.4° F, the body cannot sweat to cool down, and heat stress can occur. Heat stress may be identified by the following symptoms: dizziness, profuse sweating, skin color change, vision problems, confusion, nausea, fatigue, fainting, and clammy skin. Personnel exhibiting such symptoms will be removed to a cool shady area, given water, and allowed to rest. Fresh drinking water will be provided during field activities. All field team members will monitor their own condition and that of their co-workers to detect signs of heat stress.

4.3.8 Hypothermia

Since work will be conducted in the late fall, cold temperatures and hypothermia are also a possibility. Hypothermia is abnormal lowering of the core body temperature caused by exposure to a cold environment. Wind chill as well as wetness or water immersion can play a significant role. Typical signs of hypothermia include fatigue, weakness, lack of coordination, apathy, and drowsiness. Confusion is a key symptom of hypothermia. Shivering and pallor are usually absent, and the face may appear puffy and pink.

Body temperatures below 90° F require immediate treatment to restore the temperature to normal. Current medical practice recommends slow warming of the individual followed by professional medical care. Moving the person to a sheltered area and wrapping them in a blanket can accomphsh this portion of the task. If possible, the person should be placed in a warm room. In emergencies where body temperature falls below 90° F and shelter is not available, a sleeping bag, blankets, and body heat from another individual can be used to help raise body temperature.

4.3.9 Weather

In general, field team members will be equipped for the normal range of weather conditions. The designated FC will be aware of current weather conditions and of the potential for those conditions to pose a hazard to the field personnel. Some conditions that might force work stoppage are electrical storms, high winds, or high waves resulting from winds.

4.3.10 Flammable Hazards

Petroleum hydrocarbons are flammable in moderate to high concentrations; therefore, smoking, open flames, and unprotected ignition sources will not be allowed in the work area. An OVM will be used to measure concentrations of organic vapors in the work area. If elevated OVM measurements persist, work will be suspended until corrective measures are taken to ensure a safe work environment. Table 2 includes additional information about air monitoring action levels.

4.3.11 Biological Hazards

Direct contact with Dyes Inlet water may be hazardous due to the potential for combined sewer overflow (CSO) contamination. All field personnel will avoid contact with potential biological or infectious materials, wear PPE as appropriate, and wash hands and face as soon as possible after contact and before eating or drinking.

4.4 Activity Hazard Analysis

The activity hazard analysis summarizes the field activities to be, outhnes the hazards associated with each activity, and presents controls that can reduce or eliminate the risk of the hazard occurring.

Table 3 presents the activity hazard analysis for the following activities:

- Field activities (including construction management)
- Surface sediment sample collection
- Sediment sample handling, packaging, processing, and shipping
- Equipment decontamination

Table 3
Activity Hazard Analysis

Activity	Hazard	Control
Sampling activities including sediment sample collection	Falling	Avoid working near the edge of water or excavations, if possible. Stay away from edge of excavations.
	Cuts, amputations	Be aware of and avoid equipment pinch points. Use care when using hand tools to process samples.
	Back or muscle strain	Use appropriate lifting technique when handling heavy equipment and lifting heavy sample containers. Enlist help if necessary.
	Noise	Wear ear plugs or ear muffs when operating loud machinery or cutting cores open with a power saw.
	Skin or eye contact with potentially contaminated sediments or liquids	Wear modified Level D PPE, including eye protection.
	Slipping/tripping on slick or uneven surfaces	Wear steel-toed boots with gripping tread. Be aware of obstacles and wet patches on surfaces and select a path to avoid them.
	Injury from equipment falling or swinging	Wear a hard hat and steel-toed boots at all times; be in the appropriate position on deck when equipment is in operation.
	Electric Shock	Use ground fault-indicator extension cord, and seal plug connections with electrical tape.
	Fire	Avoid fueling operations near hot engines. Mop up any spilled flammable liquids and dispose of absorbent. No smoking or flame sources on site.
	Rotating or percussive drilling equipment	Stay clear of area around borehole while drilling activities are underway. Do not wear loose fitting clothing or exposed long hair.
	Injury from winch line snapping	Ensure that winch line is not frayed.

Activity	Hazard	Control
Handling, packaging, and shipping samples	Skin or eye contact with potentially contaminated liquids	Wear modified Level D PPE, including eye protection.
	Back or muscle strain	Use appropriate lifting technique when handling heavy equipment and lifting heavy sample containers. Enlist help if necessary.
	Inhalation of or eye contact with airborne mists or vapors	Wear safety glasses. Perform decontamination activities outdoors or in a well-ventilated area. Stay upwind when spray-rinsing equipment.
Decontaminating equipment	Inhalation of, or eye contact with, airborne mists or vapors	Wear safety glasses. Perform decontamination activities outdoors or in a well-ventilated area. Stay upwind when spray-rinsing equipment.
	Skin contact with potentially contaminated materials	Wear modified Level D PPE, including eye protection.
	Ingestion of contaminated materials	Decontaminate clothing and skin prior to eating, drinking, smoking, or other hand-to-mouth activities. Follow the decontamination procedure for personal decontamination.

5 WORK ZONES AND ACCESS CONTROL

The FC will delineate the boundaries of the work zones and will inform the field personnel of the arrangement. The purpose of the zones is to limit the migration of sample material out of the zones and to restrict access to active work areas by defining work zone boundaries.

5.1 Sampling Work Zones

The following zones are sampling work zones:

- Exclusion zone: The exclusion zone will enclose the entire perimeter of the sampling location/machinery and will include the area where sampling is taking place. The exclusion zone will encompass an area 1.5-times the height of the drill rig tower around the drill rig where practical. Where topography and structures preclude this area, adjustments will be made in the field. Only sampling personnel may enter this zone unless assistance is required by other personnel. The exclusion zone will also include a nearby sample processing area along the shoreline or on top of the bank area. Samples will likely be processed under fold-up canopies and the exclusion zone will encompass the entire area under the canopy where samples will be processed or where contact to contaminated soil and sediments is possible. Entry and exit to this zone will be through a designated access point.
- Contamination reduction zone (CRZ): The CRZ during sediment handling will encompass the area surrounding the Exclusion zone. Decontamination of both personnel and equipment will occur in this zone to prevent the transfer of chemicals of concern to the support zone. Entry and exit between zones will be through a designated access point.
- Support zone: The support zone will be located in the on-site trailer or outside the CRZ.

Sampling staff will instruct people to stay outside the exclusion zone where samples are collected and where sample processing is occurring.

5.2 Decontamination Area

All contaminated materials will be properly contained. A station within the CRZ will be set up for decontaminating sample processing equipment and personnel gear such as boots or PPE. The station will have the buckets, brushes, soapy water, rinse water, or wipes necessary to perform decontamination operations. Plastic bags will be provided for expendable and disposable materials. The decontamination fluids will be stored in sealable containers and will be disposed of in accordance with applicable regulations.

5.3 Access Control

Security and control of access to the Site will be the responsibihty of the site supervisor (SS) and/or SSHO. Access to the work areas will only be granted to necessary project personnel and authorized visitors. Any security or access control problems will be reported to the client or appropriate authorities.

6 SAFE WORK PRACTICES

Following common sense rules will minimize the risk of exposure or accidents at a work site. These general safety rules will be followed on site:

- Always use the buddy system.
- Be aware of overhead and underfoot hazards at all times.
- Do not eat, drink, smoke, or perform other hand-to-mouth transfers in the work zones.
- Get immediate first aid for all cuts, scratches, abrasions, or other minor injuries.
- Report all accidents and near-misses, no matter how minor, to the FC.
- Be alert to your own and other workers' physical condition.
- Do not climb over or under obstacles of questionable stability.
- Make eye contact with equipment operators before moving into the range of their equipment.
- Work during daylight hours.

7 PERSONAL PROTECTIVE EQUIPMENT AND SAFETY EQUIPMENT

Appropriate PPE will be woru for all tasks as protection against potential hazards. Prior to donning PPE, the workers will inspect their equipment for any defects that might render the equipment ineffective.

All fieldwork for all tasks will be conducted in Level D or modified Level D as discussed in Sections 6.1, 6.2, and 6.3. Situations requiring PPE beyond modified Level D are not anticipated for this project. Should the FC determine that PPE beyond modified Level D is necessary at a given sampling station, the FC will notify the SSHO to select an appropriate corrective action.

7.1 Level D Personal Protective Equipment

Workers performing general activities in which skin contact with contaminated materials is unlikely and in which inhalation risks are not expected will wear Level D PPE. Level D PPE includes the following:

- Chemical-resistant, steel-toed boots
- Leather, cotton, or chemical-resistant gloves, as the type of work requires
- Safety glasses
- Hard hat (if overhead hazard exists)
- Hearing protection, if necessary

7.2 Modified Level D Personal Protective Equipment

Workers performing activities where skin contact with contaminated materials is possible will wear chemical-resistant outer gloves and an impermeable outer suit. The type of outerwear will be chosen according to the types of chemical contaminants that might be encoumtered. Modified Level D PPE includes the following:

- Outer garb such as rain gear or rubber or vinyl aprons
- Chemical-resistant steel-toed boots
- Surgical rubber inner gloves
- Chemical-resistant outer gloves
- Safety glasses (or face shield, if significant splash hazard exists)

- Hard hat (if overhead hazard exists)
- Hearing protection, if necessary

7.3 Safety Equipment

In addition to PPE that will be worn by persormel, basic emergency and first aid equipment will also be provided and easily accessible in an unlocked location known to all personnel prior to the start of any activities. Equipment will include:

- A copy of this HASP
- First aid kit adequate for the number of personnel
- Emergency eyewash

Anchor QEA and/or subcontractors will provide this equipment, which must be at the location(s) where field activities are being performed. Equipment will be checked daily to ensure its readiness for use.

8 MONITORING PROCEDURES FOR SITE ACTIVITIES

A monitoring program that addresses the potential site hazards will be maintained. The monitoring prograin includes self-monitoring by the field personnel and monitoring with instruments.

8.1 Self Monitoring

All personnel will be instructed to look for and inform each other of any negative changes in their physical or mental condition during the performance of all field activities. Examples of such changes are as follows:

- Headaches
- Dizziness
- Nausea
- Blurred vision
- Cramps
- Irritation of eyes, skin, or respiratory system
- Changes in complexion or skin color
- Changes in apparent motor coordination
- Increased frequency of minor mistakes
- Excessive salivation or changes in papillary response
- Changes in speech ability or speech patteru
- Symptoms of heat stress or heat exhaustion (Section 4.3.7)
- Symptoms of hypothermia (Section 4.3.8)

If any of these conditions develop, the affected person(s) will be moved from the immediate work location and evaluated. If further assistance is needed, personnel at the local hospital will be notified, and an ambulance will be summoned if the condition is thought to be serious. If the condition is the result of sample collection or processing activities, procedures and/or PPE will be modified to address the problem.

8.2 Real-time Air Monitoring Equipment

Organic vapor concentrations shall be monitored in the field using an OVM, PID, or FID. During sampling and excavation work, organic vapor measurements shall be taken in the breathing zone of workers while additional area monitoring may be conducted to gather background and environmental impact information.

Other real-time air monitoring equipment may be utilized depending upon the scope of work and compounds of concern. Air monitoring results shall be documented on the air monitoring log form presented in Attachment 1.

The air monitoring scope and frequency may be adjusted based on air data obtained during the initial stages of a work task.

8.2.1 Equipment Calibration and Maintenance

Calibration and maintenance of air monitoring equipment shall follow manufacturer specifications and must be documented. Re-calibration and adjustment of air monitoring equipment shall be completed daily and as site conditions and equipment operation warrant. Records of air monitoring equipment cahbration and adjustment information will be recorded in the field logbook or daily log form.

8.2.2 Air Monitoring Action Levels

Air monitoring action levels have been developed for this project and are listed in Table 2.

9 DECONTAMINATION

Decontamination is necessary to prevent the migration of contaminants from the work zone(s) into the surrounding environment and to minimize the risk of exposure of personnel to contaminated materials that might adhere to PPE. The following sections discuss personnel and equipment decontamination.

The following supphes will be available to perform decontamination activities:

- Wash and rinse buckets
- Tap water and phosphate-free detergent (such as Alconox)
- Hexane or acetone (or similar type solution) for more robust equipment decontamination
- Scrnb brushes and plastic tubs
- Distilled/deionized water
- Paper towels and plastic garbage bags

9.1 Minimization of Contamination

The following measures will be observed to prevent or minimize exposure to potentially contaminated materials:

- Personnel:
  - Do not walk through spilled sediment or soil
  - Do not handle, touch, or smell sediment or soil directly
  - Make sure PPE has no cuts or tears prior to use
  - Protect and cover any skin injuries
  - Stay upwind of airborne dusts and vapors
  - Do not eat, drink, chew tobacco, or smoke in the work zones
- Sampling Equipment and Machinery:
  - Use care to avoid getting sampled media on the outside of sample containers
  - If necessary, bag sample containers before filling with sampled media
  - Place clean equipment on a plastic sheet to avoid direct contact with contaminated media
  - Keep contaminated equipment and tools separate from clean equipment and tools

- Fill sample containers over a plastic tub to contain spillage
- Clean up spilled material immediately to avoid tracking around the drill rig

9.2 Personal Decontamination

The FC will ensure that all site personnel are familiar with personnel decontamination procedures. Personnel will perform decontamination procedures, as appropriate, when exiting work areas. Following is a description of the decontamination procedure:

- Wash and rinse outer gloves and boots in portable buckets
- If suit is heavily soiled, rinse it off
- Remove outer gloves, inspect and discard if damaged, leave inner gloves on
- Remove inner gloves and wash hands if taking a break
- Don necessary PPE before returning to work
- Dispose of soiled PPE before leaving for the day

10 TRAINING REQUIREMENTS

Individuals performing work at locations where potentially hazardous materials and conditions may be encoumtered must meet specific training requirements. It is not anticipated that persormel will encounter hazardous concentrations of contaminants in sampled material, so training will consist of site-specific instruction for all persormel and oversight of inexperienced personnel for one working day. The following sections describe the training requirements for work at this Site.

10.1 Project Specific Training

All Anchor QEA personnel must read this HASP and be familiar with its contents before beginning work. They shall acknowledge reading the HASP by signing the field team HASP review form contained in Attachment 3. The form will be kept in the project files.

The FC or a designee will provide and document project-specific training during the project kickoff meeting and whenever new Anchor QEA workers arrive for fieldwork. Anchor QEA personnel will not be allowed to begin work until project-specific training is completed and documented by the FC. Training will address the HASP and all health and safety issues and procedures pertinent to field operations. Training will include, but will not be limited to, the following topics:

- Activities with the potential for chemical exposure
- Activities that pose physical hazards, and actions to control the hazards
- Site access control and procedures
- Use and limitations of PPE
- Decontamination procedures
- Emergency procedures
- Use and hazards of sampling equipment
- Location of emergency equipment

All workers in the exclusion zone or CRZ must have 40-hour HAZWOPER training in accordance with OSHA. An updated 8-hour HAZWOPER refresher training is required for all workers in the exclusion zone or CRZ whose 40-hour HAZWOPER training certificate is more than one year old.

10.2 Daily Safety Briefings

The FC or a designee will conduct daily safety briefings before the start of each day's activities. These briefings will outline the activities expected for the day, update work practices and hazards, and address any specific concerns associated with the work location, and review emergency procedures and routes. The tailgate safety briefings will be documented in the logbook. A checklist of daily safety briefing topics will be conducted and supplemented with the following topics:

- Hazard Exposure Routes
- Chemical Hazards
- Physical Hazards
- Biological Hazards
- Mitigation Procedures
- Safety Communication
- Lines of Authority
- Description of first aid kit, including a discussion of usage (initial comprehensive training session and a brief daily overview)
- Near-water safety

A daily safety briefing log form is presented in Attachment 1.

11 RECORDING AND RECORD KEEPING

The FC or a designee will record health- and safety-related details of the project in the field logbook. The logbook must be bound and the pages must be numbered consecutively. Entries will be made with indelible ink. At a minimum, each day's entries must include the following information:

- Project name or location
- Names of all personnel
- Level of PPE worn and any other specifics regarding PPE
- Weather conditions
- Type of fieldwork being performed

The person maintaining the entries will initial and date the bottom of each completed page. Blank space at the bottom of an incompletely filled page will be lined out. Each day's entries will begin on the first blank page after the previous workday's entries.

As necessary, other documentation will be obtained or initiated by the FC. Other documentation may include field change requests, medical and training records, exposure records, accident/incident report forms, OSHA Form 200s, and material safety data sheets. Attachment 1 contains copies of key health and safety forms.

12 HEALTH AND SAFETY PLAN APPROVAL RECORD

By their signature, the undersigned certify that this HASP is approved and that it will be used to govern health and safety aspects of fieldwork conducted by Anchor QEA personnel to investigate areas associated within the Site area.

Anchor QEA Project Manager Date

Anchor QEA Site Supervisor Date

Anchor QEA Site and Safety Health Officer Date

13 REFERENCES

U.S. Environmental Protection Agency (EPA), 2001. Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual. EPA/823/B-01-022, October 2001.

ATTACHMENT 1
HEALTH AND SAFETY LOGS AND FORMS

ANCHOR QEA

DAILY AIR MONITORING RECORD

PROJECT NAME: ____________________ **DATE:** ____________________

PROJECT NUMBER: ____________________ **LOCATION:** ____________________

TEMPERATURE: ____________________

CONDITIONS: ____________________

COC	Instrument	S/N	Calibration Date	Calibration Gas/Method	Calibration by
Organic vapors					
Particulates					
O_2					
Other:					
Other:					
Other:	Draeger				

Time	Location/Description	Organic Vapor (ppm)	O_2%	CG %LEL	Other	Other

Notes:

Completed by:

Printed Name ____________________ Signature ____________________ Date ____________________

ANCHOR QEA

DATE: ______________________

PROJECT NAME: ______________________

PROJECT NO: ______________________

DAILY SAFETY BRIEFING

PERSON CONDUCTING MEETING: ______________ HEALTH & SAFETY OFFICER: ______________ PROJECT MANAGER: ______________

TOPICS COVERED:

- ☐ Emergency Procedures and Evacuation Route
- ☐ Directions to Hospital
- ☐ HASP Review and Location
- ☐ Safety Equipment Location
- ☐ Proper Safety Equipment Use
- ☐ Employee Right-to-Know/MSDS Location
- ☐ Fire Extinguisher Location
- ☐ Eye Wash Station Location
- ☐ Buddy System
- ☐ Self and Coworker Monitoring
- ☐ Lines of Authority
- ☐ Communication
- ☐ Site Security
- ☐ Vessel Safety Protocols
- ☐ Work Zones
- ☐ Vehicle Safety and Driving/Road Conditions
- ☐ Equipment Safety and Operation
- ☐ Proper Use of PPE
- ☐ Decontamination Procedures
- ☐ Other:
- ☐ Lifting Techniques
- ☐ Slips, Trips, and Falls
- ☐ Hazard Exposure Routes
- ☐ Heat and Cold Stress
- ☐ Overhead and Underfoot Hazards
- ☐ Chemical Hazards
- ☐ Flammable Hazards
- ☐ Biological Hazards
- ☐ Eating/Drinking/Smoking

WEATHER CONDITIONS: ______________________

DAILY WORK SCOPE: ______________________

SITE-SPECIFIC HAZARDS: ______________________

SAFETY COMMENTS: ______________________

ATTENDEES

PRINTED NAME	SIGNATURE

ATTACHMENT 2
MATERIAL SAFETY DATA SHEETS

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: **ACETONE**

Manufacturer Information:

Sunoco Chemicals, Inc.
1735 Market Street LL

Philadelphia, Pennsylvania, 19103-7583

Product Use:

Chemical intermediate

Emergency Phone Numbers:

Chemtrec	(800) 424-9300
Sunoco Inc.	(800) 964-8861

Information:

Product Safety Information	(888) 567-3066

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount (Vol%)
ACETONE	67-64-1	100

EXPOSURE GUIDELINES (SEE SECTION 15 FOR ADDITIONAL EXPOSURE LIMITS)

	CAS No.	Governing Body	Exposure Limits		
Limit for the product	67-64-1	ACGIH	STEL	750	ppm
Limit for the product	67-64-1	ACGIH	TWA	500	ppm
Limit for the product	67-64-1	OSHA	TWA	1000	ppm

3. HAZARDS IDENTIFICATION

- **EMERGENCY OVERVIEW**
  Danger! Extremely flammable liquid and vapor. Vapors may cause flash fire or explosion. Harmful if inhaled. Overexposure may cause nervous system effects. Harmful or fatal if swallowed. Pulmonary aspiration hazard. While ingesting or vomiting, may enter lungs and produce damage. Causes eye irritation. Causes respiratory tract irritation. May cause target organ or system damage to the following: eye, respiratory system, nervous system, kidney, blood-related effects,

Hazards Ratings:

Key: 0 = least, 1 = slight, 2 = moderate, 3 = high, 4 = extreme

	Health	Fire	Reactivity	PPI
NFPA	1	3	0	
HMIS	1	3	0	X

- **POTENTIAL HEALTH EFFECTS**
  - **PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**
    The following diseases or disorders may be aggravated by exposure to this product: skin, eye, lung (asthma-like conditions),
  - **INHALATION**
    See Section 15 for additional information. High concentrations may lead to central nervous system effects (drowsiness, dizziness, nausea, headaches, paralysis and loss of consciousness and even death). High vapor concentrations are irritating to the eyes, nose, throat, and lungs.

LC50 (mg/l):	no data	
LC50 (mg/m3):	rat 4 hrs	32000
LC50 (ppm):	no data	

  - **SKIN**
    Non-irritating to the skin. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

Draize Skin Score:	no data		Out of 8.0
LD50 (mg/kg):	rabbit	15700	

  - **EYES**
    Contact with the eye may cause moderate to severe irritation.
  - **INGESTION**
    See Section 15 for additional information. While ingesting or vomiting, may enter lungs and produce damage. May produce central nervous system effects, which includes dizziness, loss of balance and coordination, unconsciousness, coma and even death.

LD50 (g/kg):	rat >5

4. FIRST AID MEASURES

- **INHALATION**
  Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and continue to monitor. Get immediate medical attention.
- **SKIN**
  Immediately flush with large amounts of water for 20 minutes, use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. Get prompt medical attention.
- **EYES**
  Flush eye with water for 20 minutes. Get medical attention.
- **INGESTION**
  Do not induce vomiting! If swallowed, immediately contact a physician or Poison Control Center. Never give anything by mouth to an intoxicated, unconscious or convulsing person. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

- **EXTINGUISHING MEDIA**
  Water spray; Alcohol resistant foam; Dry chemical; Carbon dioxide;
- **FIRE FIGHTING INSTRUCTIONS**
  Use water spray. Use water spray to cool fire exposed tanks and containers. Acetone/water solutions that contain more than 2.5% acetone have flash points. When the acetone concentration is greater than 8% (by weight) in a closed container, it would be within the flammable range and cause fire or explosion if a source of ignition were introduced.
- **FLAMMABLE PROPERTIES**
  STATIC ACCUMULATOR. This liquid may form an ignitable vapor-air mixture in closed tanks or containers.

	Typical	Minimum	Maximum	Text Result	Units	Method
Flash Point	1.4				F	N/A

Autoignition Temperature	869				F	N/A
Lower Explosion Limit	2.5				%	N/A
Upper Explosion Limit	12.8				%	N/A

6. ACCIDENTAL RELEASE MEASURES

Prevent ignition, stop leak and ventilate the area. Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Use appropriate personal protective equipment as stated in Section 8 of this MSDS. Advise the Environmental Protection Agency (EPA) and appropriate state agencies, if required. US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is (800) 424-8802. After removal, flush contaminated area thoroughly with water.

7. HANDLING AND STORAGE

- HANDLING
  Use only in a well-ventilated area. STATIC ACCUMULATOR. This liquid may form an ignitable vapor-air mixture in closed tanks or containers. This liquid may accumulate static electricity even when transferred into properly grounded containers. Bonding and grounding may be insufficient to remove static electricity. Static electricity accumulation may be significantly increased by the presence of small quantities of water.Always bond receiving container to the fill pipe before and during loading, following NFPA-77 and/or API RP 2003 requirements. Automatic gauging devices and other floats in vessels or tanks which contain static accumulating liquids should be electrically bonded to the shell. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards associated with electrostatic charges. In addition to bonding and grounding, efforts to mitigate the hazards of an electrostatic discharge may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Always keep the nozzle in contact with the container throughout the loading process. Do not fill any portable containers in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e. loading this material in tanks or shipping compartments that previously contained middle distillates or similar products). Non-equilibrium conditions may increase the risks associated with static electricity such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. Dissipation of electrostatic charges may be improved with the use of conductivity additives when used with other mitigating efforts, including bonding and grounding. Avoid breathing (dust, vapor, mist, gas). Avoid contact with this material. Wash thoroughly after handling. Do not use air pressure to unload containers.
- STORAGE
  Keep away from heat, sparks, and flame. Store in a cool dry place. Keep container closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Consult With a Health and Safety Professional for Specific Selections

- ENGINEERING CONTROLS
  Use with adequate ventilation. Ventilation is normally required when handling or using this product to keep exposure to airbome contaminants below the exposure limit. Use explosion-proof ventilation equipment.
- PERSONAL PROTECTION
  - EYE PROTECTION
    Splash proof chemical goggles or full face shield recommended to protect against splash of product.
  - GLOVES or HAND PROTECTION
    The glove(s) listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection. Protective gloves are recommended to protect against contact with product. Butyl rubber; Teflon; Responder Tychem
  - RESPIRATORY PROTECTION
    Concentration in air determines the level of respiratory protection needed. Use only NIOSH certified respiratory equipment. Half-mask air purifying respirator with organic vapor cartridges is acceptable for exposures to ten (10) times the exposure limit. Full-face air purifying respirator with organic vapor cartridges is acceptable for exposures to fifty (50) times the exposure limit. Exposure should not exceed the cartridge limit of 1000 ppm. Protection by air purifying respirators is limited. Use a positive pressure-demand full-face supplied air respirator or SCBA for exposures greater than fifty (50) times the exposure limit. If exposure is above the IDLH

(Immediately Dangerous to Life and Health) or there is the possibility of an uncontrolled release, or exposure levels are unknown, then use a positive pressure-demand full-face supplied air respirator with escape bottle or SCBA. Wear a NIOSH-approved (or equivalent) full-facepiece airiine respirator in the positive pressure mode with emergency escape provisions.

- **OTHER**
  The following materials are acceptable for use as protective clothing: Butyl rubber; Teflon; Responder Tychem Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Remove contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Property	Typical	Units	Text Result	Reference
Appearance		N/A	Coloriess liq	
Boiling Point	133	F		
Bulk Density		lb/gal	No data	
Liquid Conductivity	60000	pS/m		
Melting Point	-137.2	F		
Molecular Weight	58.08	g/mole		
Octanol/Water Coefficient		N/A	No data	
pH	7	N/A		
Specific Gravity	0.79	N/A		
Solubility In Water		wt %	Complete	
Odor		N/A	Sweet pungent	
Odor Threshold	62	ppm		
Vapor Pressure	181	mmHg	@ 20 C	
Viscosity (F)		SUS	No data	
Viscosity (C)		CsT	No data	
% Volatile	100	wt %		

10. STABILITY AND REACTIVITY

- **STABILITY**
  Stable
- **CONDITIONS TO AVOID**
  Avoid heat, sparks and open flame.
- **INCOMPATIBILITY**
  Acetone may form explosive mixtures with chromic anhydride, chromyl alcohol, hexachloromelamine, hydrogen peroxide, permonosulfuric acid, potassium tertbutoxide, and thioglycol. Strong oxidizers
- **HAZARDOUS DECOMPOSITION PRODUCTS**
  Combustion may produce carbon monoxide, carbon dioxide and other asphyxiants.
- **HAZARDOUS POLYMERIZATION**
  Will not polymerize.

11. ECOLOGICAL INFORMATION

This product is not expected to persist in the environment.

12. DISPOSAL CONSIDERATIONS

Follow federal, state and local regulations. In Canada, follow federal, provincial and local regulations. This material is a RCRA hazardous waste. Do not flush material to drain or storm sewer. Contract to authorized disposal service.

13. TRANSPORT INFORMATION

Governing Body	Mode	Proper Shipping Name
DOT	Ground	Acetone

Governing Body	Mode	Hazard Class	UN/NA No.	Label
DOT	Ground	3 (Flammable liquid)	UN1090	

14. REGULATORY INFORMATION

ADDITIONAL REGULATORY INFORMATION: This product is subject to the Chemical Diversion and Trafficking Act of 1988 and subject to specific record keeping requirements. WHMIS Classification: Class B Division 2 - Flammable Liquids;

Regulatory List	Component	CAS No.
ACGIH - Occupational Exposure Limits - Carcinogens	ACETONE	67-64-1
ACGIH - Occupational Exposure Limits - TWAs	ACETONE	67-64-1
ACGIH - Short Tenn Exposure Limits	ACETONE	67-64-1
CAA (Clean Air Act) - HON Rule - SOCMI Chemicals	ACETONE	67-64-1
CAA (Clean Air Act) - VOCs in SOCMI	ACETONE	67-64-1
Canada - WHMIS - Ingredient Disclosure	ACETONE	67-64-1
CERCLA/SARA - Haz Substances and their RQs	ACETONE	67-64-1
DEA - List II Essential Chemicals	ACETONE	67-64-1
Inventory - Australia (AICS)	ACETONE	67-64-1
Inventory - Canada - Domestic Substances List	ACETONE	67-64-1
Inventory - China	ACETONE	67-64-1
Inventory - European EINECS Inventory	ACETONE	67-64-1
Inventory - Japan - (ENCS)	ACETONE	67-64-1
Inventory - Korea - Existing and Evaluated	ACETONE	67-64-1
Inventory - New Zealand	ACETONE	67-64-1
Inventory - Philippines Inventory (PICCS)	ACETONE	67-64-1
Inventory - TSCA - Sect. 8(b) Inventory	ACETONE	67-64-1
Massachusetts - Right To Know List	ACETONE	67-64-1
New Jersey - Department of Health RTK List	ACETONE	67-64-1
New Jersey - Special Hazardous Substances	ACETONE	67-64-1
OSHA - Final PELs - Time Weighted Averages	ACETONE	67-64-1
Pennsylvania - RTK (Right to Know) List	ACETONE	67-64-1
Pennsylvania - RTK - Environmental Hazard List	ACETONE	67-64-1
TSCA - Sect. 12(b) - Export Notification	ACETONE	67-64-1
TSCA - Section 4 - Chemical Test Rules	ACETONE	67-64-1
U.S. - DOT - Hazardous Substances and RQs (App A)	ACETONE	67-64-1

Title ill Classifications **Sections 311,312:**

- Acute: YES
- Chronic: NO
- Fire: YES
- Reactivity: NO
- Sudden Release of Pressure: NO

15. OTHER INFORMATION

ADDITIONAL TOXICOLOGY INFORMATION: Repeated inhalation exposure of pregnant animals to very high vapor concentrations has produced toxicity in the developing offspring but only at doses that were toxic to the maternal animals. Repeated oral exposure of laboratory animals to very large amounts of acetone in their drinking water produced anemia and effects on the testis. Repeated dermal exposure in laboratory animals did not result in tumor formation. The weight of evidence suggests that this substance in not genotoxic. OTHER ADDITIONAL INFORMATION: Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner or properly disposed of.

Material Safety Data Sheet

Material Name: Alconox®

*** Section 1 - Chemical Product and Company Identification ***

Manufacturer Infonnation

Alconox inc.
30 Glenn Street
Suite 309
White Plains, NY 10603

Phone: 813-248-0585

Emergency # 800-255-3924

*** Section 2 - Hazards Identification ***

Emergency Overview

May cause eye, skin, respiratory and gastrointestinal irritation.

Potential Health Effects: Eyes

May cause irritation.

Potential Health Effects: Skin

Proionged contact may cause initation.

Potential Health Effects: Ingestion

May cause vomiting and diarrhea, abdominal pain, and gastric distress.

Potential Health Effects: Inhalation

Airbome particles may cause irritation.

HMIS Ratings: Health: 1 Fire: 0 HMIS Reactivity 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
25155-30-0	Sodium dodecylbenzenesulfonate	10-30
7722-88-5	Tetrasodium pyrophosphate	10-30
7758-29-4	Pentasodium triphosphate	10-30
497-19-8	Sodium carbonate	7-13

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Check for and remove contact lenses. Flush eyes with clear, running water while holding eyelids open: if irritation persists, consult a physician.

First Aid: Skin

Remove contaminated clothing. Wash thoroughly with soap and water. Seek medical attention if irritation persists.

First Aid: Ingestion

Ingestion is an unlikely route of exposure. Dilute with two glasses of water. Never give anything by mouth to an unconscious person. Do not induce vomiting, seek immediate medical attention.

First Aid: Inhalation

Remove victim to fresh air. Get immediate medical attention.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 for Flammabiiity Properties.
Not flammable.

Hazanious Combustion Products

Oxides of carbon (COx). Hydrocarbons.

Extinguishing Media

Csahon dioxide, dry chemical, foam. Water. Water fog.

Fire Fighting Equipment/instructions
Self-contained breathing apparatus required. Firefighters should wear the usual protective gear.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Personal Precautions
If conditions warrant, clean up personnel should wear approved respiratory protection, gloves, and goggles to prevent irritation from contact and/or inhalation.
Containment Procedures
No special measures needed.
Environmental Precautions
None necessary.
Clean-Up Procedures
Contain the spill. Recover uncontaminated material for re-use. Wear appropriate protective equipment. Contaminated material should be swept or shoveled into appropriate waste container for disposal.
Evacuation Procedures
Isolate area. Keep unnecessary personnel away.
Special Procedures
None

*** Section 7 - Handling and Storage ***

Handling Procedures
Protect against physical damage. Avoid breathing dust. Wash thoroughly after handling. Keep out of reach of children. Avoid contact with skin, eyes and clothing. Launder contaminated clothing prior to reuse.

Storage Procedures
Keep containers closed when not in use. Store away from strong acids or oxidizers. Store in a cool, dry and well ventilated area.

*** Section 8 - Exposure Controls / Personal Protection ***

A: Component Exposure Limits
Tetrasodium pyrophosphate (7722-88-5)
OSHA: 5 mg/m3 TWA
NIOSH: 5 mg/m3 TWA

Engineering Controls
Local exhaust at points of emission.
PERSONAL PROTECTIVE EQUIPMENT
Personal Protective Equipment: Eyes/Face
Wear safety glasses with side shields or goggles.
Personal Protective Equipment: Skin
Wear protective gloves and apron
Personal Protective Equipment: Respiratory
If exposure limit is exceeded, wear a NIOSH approved respirator. Based on test data, exposure limits should not be exceeded under normal use conditions when using Alconox detergent.
Personal Protective Equipment: General
None

*** Section 9 - Physical & Chemical Properties ***

Material Safety Data Sheet

Material Name: Alconox®

Appearance:	White granular powder	Odor:	None
Physical State:	Solid	pH:	9.5 (1% aqueous sclution)
Vapor Prssaure:	Nkt Applicable	Vapor Density:	Not Applicable
BolSng Point:	Not Applicable	Meltbrg Point:	Not Detennined
Solubility (H2O):	100%	Specilic Gravity:	0-85-1.10
Evaporation Rate:	Not Oetetmined	VOC:	None
Octauol/H2O Coeff.:	Not Detennined	Flash Point:	None
Flash Point Method:	Not Applicable	Upper Flammability Limit (UFL):	Not Applicable
Lower Flammability Limit (LPL):	Not Applicable	Buming Rate:	Not Applicable
Auto Ignition:	Not Available		

*** Section 10 - Chemical Stability & Reactivity Infoimation ***

Chemical Stability

Tlus is a stable material.

Chemical Stabilliy: Conditions to Avoid

Dust generation

Incompatibility

Strong acids and oxidizers

Hazardous Decomposition

Oxides of carbon (COx). Hydrocabons.

Possibility of Hazantous Reactions

Will not occur.

*** Section 11 - Toxicological information ***

Acute Dose Effects

A: General Product Infonnation

No inbrmation available for the product.

B: Component Analysis - LD50/LC50

Sodium dodecytbenzenesulfonate (25155-30 4)
Oral LD50 Rat: 438 mg/kg

Tetrasodium pyrophosphate (7722-88-5)
Oral LD50 Rat: >2000 mg/kg

Pentasodium triphosphate (7758-29-4)
Oral LD50 Rat: 3100 mg/kg; Dermal LD50 Rabbit:>7940 mg/kg

Sodium carbonate (497-19-8)
Oral LD50 Rat: 4090 mg/kg; Dermal LD50 Mouse:2210 mg/kg

Carcinogenicity

A: General Product Information

No information available for the product.

B: Component Carcinogenicity

None of tMs product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Infonnation

No information available for fhe product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Sodium dodecytbenzenesulfonate (25155-30-0)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	10.8 mg/L [static]

Pentasodium triphosphate (7758-29-4)

Test & Species		Conditions
48 Hr LC50 Leudiscus idus	1650 mg/L	

Sodium carbonate (497-19-8)

Test & Species		Conditions
96 Hr LC50 Lepomis macrochirus	300 mg/L [static]	
96 Hr LC50 Pimephales promelas	<310-1220 mg/L [static]	
120 Hr EC50 Nitzschia	242 mg/L	

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Not Regulated

*** Section 15 - Regulatory Information ***

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Sodium dodecylbenzenesulfonate (25155-30-0)

CERCLA: 1000 lb final RQ; 454 kg final RQ

Pentasodium triphosphate (7758-29-4)

CERCLA: 5000 lb final RQ (listed under Sodium phosphate, tribasic); 2270 kg final RQ (listed under Sodium phosphate, tribasic)

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Sodium dodecylbenzenesulfonate	25155-30-0	Yes	Yes	No	Yes	Yes	No
Tetrasodium pyrophosphate	7722-88-5	Yes	Yes	Yes	Yes	Yes	Yes
Pentasodium triphosphate	7758-29-4	Yes	Yes	No	No	Yes	No

Material Safety Data Sheet

Material Name: Alconox®

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Sodium dodecylbenzenesulfonate	25155-30-0	1 %
Tetrasodium pyrophosphate	7722-88-5	1 %
Sodium carbonate	4S7-19-8	1 %

Additional Regulatory Infonnation

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Sodium dodecylbenzenesulfonate	25155-30-0	Yes	DSL	EINECS
Tetrasodium pyrophosphate	7722-88-5	Yes	DSL	EINECS
Pentasodium triphosphate	7758-29-4	Yes	DSL	EINECS
Sodium carbonate	497-19-8	Yes	DSL	EINECS

*** Section 16 - Other Infomiation ***

Other Infonnation

This material safety data sheet was prepared from information obtained from various sources, induding product suppliers and the Canadian Center for Occupational Health and Safety.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Chem Service Inc.
Material Safety Data Sheet
Cat: BTEX-IM
Date: Monday, July 28, 2008
Date Prepared: **7/28/08**

SECTION 1 - CHEMICAL PRODUCT and COMPANY IDENTIFICATION

Catalog Number: BTEX-IM
Description: BTEX Mixture

Supplied by CHEM SERVICE, Inc. PO BOX 599, WEST CHESTER, PA 19381 (610)-692-3026
EMERGENCY PHONE: 1-610-692-3026

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

The following compounds are contained in this mixture at the stated concentrations:

F4	200ug/ml	71-43-2	Benzene
F86	200ug/ml	108-88-3	Toluene
F38	200ug/ml	100-41-4	Ethylbenzene
F719	200ug/ml	95-47-6	o-Xylene
F829	200ug/ml	108-38-3	m-Xylene
F830	200ug/ml	106-42-3	p-Xylene

SECTION 3 - HAZARDS IDENTIFICATION

Contact lenses should not be wom in the laboratory.All chemicals should be considered hazardous - Avoid direct physical contact!

For the solvent: Methanol
May be fatal if absorbed through the skin! May be fatal if inhaled! May be fatal or cause blindness if swallowed. Repeated exposure to vapors and/or dust can cause eye injury. Can cause gastro-intestinal disturbances. Exposure can cause liver damage. Exposure can cause kidney damage. Can cause cardiovascular system injury. Can cause convulsions.

SECTION 4 - FIRST AID MEASURES

An antidote is a substance intended to counteract the effect of a poison. It should be administered only by a physician or trained emergency personnel. Medical advice can be obtained from a POISON CONTROL CENTER.

For the solvent: Methanol
In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water for 15-20 minutes. If no bums have occurred-use soap and water to cleanse skin. If inhaled remove patient to fresh air. Administer oxygen if patient is having difficulty breathing. If patient has stopped breathing administer artificial respirations. If patient is in cardiac arrest administer CPR. Continue life supporting measures until medical assistance has arrived. Get medical attention if necessary. Do not wear shoes or clothing until absolutely free of all chemical odors.

SECTION 5 - FIRE AND EXPLOSION DATA

For the solvent: Methanol

Flash Point: 11 C This is a flammable chemical.
Extinguishing Media: Carbon dioxide or dry chemical powder. DO NOT USE WATER!
Upper Explosion Limit: 36%
Lower Explosion Limit: 6.0%
Autoignition Temperature: C
NFPA Hazard Rating:
  Health: 1
  Flammability: 3
  Reactivity: 0
  Special:
  0 - Least, 1 - Slight, 2 - Moderate, 3 - High, 4 - Severe

SECTION 6 - ACCIENTAL RELEASE MEASURES

Spills or leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area.
Absorb on vermiculite or similar material. Sweep up and place in an appropriate container.
Hold for disposal.

Wash contaminated surfaces to rerrove any residues. Remove contaminated cloting and wash before reuse.

SECTION 7 - HANDLING AND STORAGE

Handling:
This chemical should be handled only in a hood. Eye shields should be worn.
Use appropriate OSHA/MSHA approved safety equipment.
Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation
Wash thoroughly after handling.

Storage:
Store in a cool dry place. Store only with compatible chemicals.
Keep tightly closed.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

The following information is for the solvent: Methanol

OSHA PEL (TWA): 200 ppm (260 mg/m3)
ACGIH TLV (TWA): 200 ppm(262 mg/m3)
ACGIH TLV (STEL): Not Available

Personal Protective Equipment
  Eyes: Wear Safety Glasses.
  Skin: Wear appropriate protective gloves to prevent skin exposure.
  Clothing: Wear appropriate protective clothing to minimize contact with skin.
  Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirator's use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

For the solvent: Methanol

Color: Colorless
Phase: Liquid
Melting Point: -98 C
Boiling Point: 64.6 C
Specific Gravity: 0.791
Vapor Density: 96.0mm @20
Vapor Preasure: 1.11
Solubility in Water: Miscible with
Odor: Not Available
Evaporation Rate (Butyl acetate=I): Not Available
Molecular Weight: 32.0
Molecular Formula: CH_4O

SECTION 10 - STABILITY AND REACTIVITY

For the solvent: Methanol
Flammable. Hygroscopic. Incompatible with strong acids. Reacts with Acid halides and anhydrides. Incompatible with strong oxidizing agents. Incompatible with strong reducing agents. Incompatible with active metals (e.g. Sodium). Decomposition liberates toxic fumes.

SECTION 11 - TOXICOLOGY INFORMATION

The primary hazards for this mixture are predominantly from the solvent.
The LD50 for the individual components are:

Benzene	3800mg/kg
Toluene	5000mg/kg
Ethylbenzene	3500mg/kg
o-Xylene	5000mg/kg
m-Xylene	5000mg/kg
p-Xylene	5000mg/kg

For the solvent: Methanol

RTECS: PC1400000
Oral Rat or Mouse LD50: 5628mg/kg
Dermal Rat or Mouse LD50: Not Available
Rat or Mouse LC50 : 64000 ppm/4H

Carcinogenicity
OSHA: No
IARC: No
NTP: No
ACGIH: No
NIOSH: No
Other: No

For the minor component: Benzene
Carcinogenicity: OSHA: (Yes) IARC: (Yes) NTP: (Yes) ACGIH: (Yes) NIOSH: (Yes) Other: (No)

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: Not Available
Environmental Fate: Not Available

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL: Burn in a chemicals incinerator equipped with an afterburner and scrubber.

SECTION 14 - TRANSPORTATION INFORMATION

For the solvent: Methanol
UN Number: UN1230
Class: 3
Packing Group: II
Proper Shipping Name: Methanol

SECTION 15 - REGULATORY INFORMATION

European Labeling in Accordance with EC Directives

For the solvent: Methanol
Hazard Symbols: F;**T**

Risk Phrases:
R11: Highly Flammable.
R23/25: Toxic by inhalation and if swallowed.

Safety Phrase:
S16: Keep away from sources of ignition - No smoking.
S2: Keep out of reach of children.
S24: Avoid contact with the skin.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
S7: Keep container tightly closed.

SECTION 16 - OTHER INFORMATION

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded MSDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Material Safety Data Sheet (MSDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an MSDS for a solution or mixture the user should refer to the MSDS for every component of the solution or mixture. Chem Service warrants that this MSDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This MSDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

This product is furnished FOR LABORATORY USE ONLY!

Chem Service Inc.
Material Safety Data Sheet
Cat: BTEX-1M
Date: Monday, July 28, 2008
Date Prepared: 7/28/08

SECTION 1 - CHEMICAL PRODUCT and COMPANY IDENTIFICATION

Catalog Number: BTEX-1M
Description: BTEX Mixture
Supplied by CHEM SERVICE, Inc. PO BOX 599, WEST CHESTER, PA 19381
(610)-692-3026
EMERGENCY PHONE: 1-610-692-3026

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

The following compounds are contained in this mixture at the stated concentrations:
The following compounds are contained in this mixture at the stated concentrations:
F4 200ug/ml 71-43-2 Benzene
F86 200ug/ml 108-88-3 Toluene
F38 200ug/ml 100-41-4 Ethylbenzene
F719 200ug/ml 95-47-6 o-Xylene
F829 200ug/ml 108-38-3 m-Xylene
F830 200ug/ml 106-42-3 p-Xylene

SECTION 3 - HAZARDS IDENTIFICATION

Contact lenses should not be worn in the laboratory.All chemicals should be considered hazardous - Avoid direct
physical contact!
For the solvent: Methanol
May be fatal if absorbed through the skin! May be fatal if inhaled! May be fatal or cause blindness if swallowed.
Repeated exposure to vapors and/or dust can cause eye injury. Can cause gastro-intestinal disturbances. Exposure
can cause liver damage. Exposure can cause kidney damage. Can cause cardiovascular system injury. Can cause
convulsions.

SECTION 4 - FIRST AID MEASURES

An antidote is a substance intended to counteract the effect of a poison. It should be
administered only by a physician or trained emergency personnel. Medical advice can be
obtained from a POISON CONTROL CENTER.
For the solvent: Methanol
In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water for 15-20 minutes.
If no burns have oc curred-use soap and water to cleanse skin. If inhaled remove patient to fresh air. Administer

oxygen if patient is having difficulty breathing. If patient has stopped breathing administer artificial respirations. If
patient is in cardiac arrest administer CPR. Continue life supporting measures until medical assistance has arrived.
Get medical attention if necessary. Do not wear shoes or clothing until absolutely free of all chemical odors.

SECTION 5 - FIRE AND EXPLOSION DATA

For the solvent: Methanol
Flash Point: 11 C This is a flammable chemical.
Extinguishing Media: Carbon dioxide or dry chemical powder. **DO NOT USE WATER!**
Upper Explosion Limit: 36%
Lower Explosion Limit: 6.0%
Autoignition Temperature: C
NFPA Hazard Rating:
Health: 1
Flammability: 3
Reactivity: 0
Special:
0 - Least, 1 - Slight, 2 - Moderate, 3 - High, 4 - Severe

SECTION 6 - ACCIENTAL RELEASE MEASURES

Spills or leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area.
Absorb on vermiculite or similar material. Sweep up and place in an appropriate container.
Hold for disposal.
Wash contaminated surfaces to remove any residues. Remove contaminated cloting and wash before reuse.

SECTION 7 - HANDLING AND STORAGE

Handling:
This chemical should be handled only in a hood. Eye shields should be worn.
Use appropriate OSHA/MSHA approved safety equipment.
Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation
Wash thoroughly after handling.
Storage:
Store in a cool dry place. Store only with compatible chemicals.
Keep tightly closed.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

The following information is for the solvent: Methanol
OSHA PEL (TWA): 200 ppm (260 mg/m3)
ACGIH TLV (TWA): 200 ppm(262 mg/m3)
ACGIH TLV (STEL): Not Available
Personal Protective Equipment
Eyes: Wear Safety Glasses.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 requirements
must be followed whenever workplace conditions warrant a respirator's use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

For the solvent: Methanol
Color: Coloriess
Phase: Liquid
Melting Point: -98 C
Boiling Point: 64.6 C
Specific Gravity: 0.791
Vapor Density: 96.0mm @20
Vapor Preasure: 1.11
Solubility in Water: Miscible with
Odor: Not Available
Evaporation Rate (Butyl acetate=1): Not Available
Molecular Weight: 32.0
Molecular Formula: CH4O

SECTION 10 - STABILITY AND REACTIVITY

For the solvent: Methanol
Flammable. Hygroscopic. Incompatible with strong acids. Reacts with Ac id halides and anhydrides. Incompatible with
strong oxidizing agents. Incompatible with strong reducing agents. Incompatible with active metals (e.g. Sodium).
Decomposition liberates toxic fumes.

SECTION 11 - TOXICOLOGY INFORMATION

The primary hazards for this mixture are predominantly from the solvent.
The LD50 for the individual components are:
For the solvent: Methanol
RTECS: PC1400000
Oral Rat or Mouse LD50: 5628mg/kg
Dermal Rat or Mouse LD50: Not Available
Rat or Mouse LC50 : 64000 ppm/4H
Carcinogenicity
OSHA: No
IARC: No
NTP: No
ACGIH: No
NIOSH: No
Other: No
For the minor component: Benzene
Carcinogenicity: OSHA: (Yes) IARC: (Yes) NTP: (Yes) ACGIH: (Yes) NIOSH: (Yes) Other: (No)

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: Not Available
Environmental Fate: Not Available

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL: Burn in a chemicals incinerator equipped with an afterburner and scrubber.

SECTION 14 - TRANSPORTATION INFORMATION

For the solvent: Methanol
UN Number: UN1230
Class: 3
Packing Group: II
Proper Shipping Name: Methanol

SECTION 15 - REGULATORY INFORMATION

European Labeling in Ac cordance with EC Directives
For the solvent: Methanol
Hazard Symbols: F;T
Risk Phrases:
R11: Highly Flammable.
R23/25: Toxic by inhalation and if swallowed.
Safety Phrase:
S16: Keep away from sources of ignition - No smoking.
S2: Keep out of reach of children.
S24: Avoid contact with the skin.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
S7: Keep container tightly closed.

SECTION 16 - OTHER INFORMATION

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded MSDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.
Persons not specifically and properiy trained should not handle this chemical or its container.
This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.
This Material Safety Data Sheet (MSDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an MSDS for a solution or mixture the user

should refer to the MSDS for every component of the solution or mixture. Chem Service warrants
that this MSDS is based upon the most current information available to Chem Service at the time it
was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY,
EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR
ANY PARTICULAR PURPOSE. This MSDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE
FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

This product is furnished FOR LABORATORY USE ONLY!
F4 200ug/ml 71-43-2 Benzene
F86 200ug/ml 108-88-3 Toluene
F38 200ug/ml 100-41-4 Ethylbenzene
F719 200ug/ml 95-47-6 o-Xylene
F829 200ug/ml 108-38-3 m-Xylene
F830 200ug/ml 106-42-3 p-Xylene
SECTION 3 - HAZARDS IDENTIFICATION
Contact lenses should not be worn in the laboratory.All chemicals should be considered hazardous - Avoid direct
physical contact!
For the solvent: Methanol
May be fatal if absorbed through the skin! May be fatal if inhaled! May be fatal or cause blindness if swallowed.
Repeated exposure to vapors and/or dust can cause eye injury. Can cause gastro-intestinal disturbances. Exposure
can cause liver damage. Exposure can cause kidney damage. Can cause cardiovascular system injury. Can cause
convulsions.
SECTION 4 - FIRST AID MEASURES
An antidote is a substance intended to counteract the effect of a poison. It should be
administered only by a physician or trained emergency personnel. Medical advice can be
obtained from a POISON CONTROL CENTER.
For the solvent: Methanol
In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water for 15-20 minutes.

If no burns have oc curred-use soap and water to cleanse skin. If inhaled remove patient to fresh air. Administer
oxygen if patient is having difficulty breathing. If patient has stopped breathing administer artificial respirations. If
patient is in cardiac arrest administer CPR. Continue life supporting measures until medical assistance has arrived.
Get medical attention if necessary. Do not wear shoes or clothing until absolutely free of all chemical odors.

SECTION 5 - FIRE AND EXPLOSION DATA

For the solvent: Methanol
Flash Point: 11 C This is a flammable chemical.
Extinguishing Media: Carbon dioxide or dry chemical powder. **DO NOT USE WATER!**
Upper Explosion Limit: 36%
Lower Explosion Limit: 6.0%
Autoignition Temperature: C
NFPA Hazard Rating:
Health: 1
Flammability: 3
Reactivity: 0
Special:
0 - Least, 1 - Slight, 2 - Moderate, 3 - High, 4 - Severe

SECTION 6 - ACCIENTAL RELEASE MEASURES

Spills or leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area.
Absorb on vermiculite or similar material. Sweep up and place in an appropriate container.
Hold for disposal.
Wash contaminated surfaces to remove any residues. Remove contaminated cloting and wash before reuse.

SECTION 7 - HANDLING AND STORAGE

Handling:
This chemical should be handled only in a hood. Eye shields should be worn.
Use appropriate OSHA/MSHA approved safety equipment.
Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation
Wash thoroughly after handling.
Storage:
Store in a cool dry place. Store only with compatible chemicals.
Keep tightly closed.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

The following information is for the solvent: Methanol
OSHA PEL (TWA): 200 ppm (260 mg/m3)
ACGIH TLV (TWA): 200 ppm(262 mg/m3)
ACGIH TLV (STEL): Not Available
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Eyes: Wear Safety Glasses.

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Dermal Rat or Mouse LD50: Not Available
Rat or Mouse LC50 : 64000 ppm/4H
Carcinogenicity
OSHA: No
IARC: No
NTP: No
ACGIH: No
NIOSH: No
Other: No
For the minor component: Benzene
Carcinogenicity: OSHA: (Yes) IARC: (Yes) NTP: (Yes) ACGIH: (Yes) NIOSH: (Yes) Other: (No)

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Ecotoxicity: Not Available

Environmental Fate: Not Available

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Packing Group: II
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considered all inclusive. The information has been obtained only by a search of available
literature and is only a guide for handling the chemicals. OSHA regulations require that
if other hazards become evident, an upgraded MSDS must be made available to the employee
within three months. RESPONSIBILITY for updates lies with the employer and not with
CHEM SERVICE, Inc.
Persons not specifically and properiy trained should not handle this chemical or its container.
This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED
as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.
This Material Safety Data Sheet (MSDS) is intended only for use with Chem Service, Inc. products
and should not be relied on for use with materials from any other supplier even if the chemical

This product is furnished FOR LABORATORY USE ONLY!

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

KOPPERS INC.
436 SEVENTH AVENUE
PITTSBURGH, PA 15219-1800
naorgmsds@koppers.com

MEDICAL EMERGENCIES: 877-737-9047
MEDICAL EMERGENCIES OUTSIDE U.S.A.: 651-632-9269
TECHNICAL ASSISTANCE: 412-227-2001
MSDS REQUESTS: 866-852-5239
CHEMTREC ASSISTANCE: 800-424-9300
CANUTEC: 613-996-6666

MSDS NUMBER: 00228355

SUBSTANCE: COAL TAR ROOFING PITCH

TRADE NAMES/SYNONYMS:
COAL TAR PITCH; COAL TAR PITCH-TYPE 1; OLD STYLE ROOFING PITCH

CHEMICAL FAMILY: polynuclear, aromatic hydrocarbons

PRODUCT USE: building/roofing/waterproofing product

REVISION DATE: Jun 14 2007

2. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=1 REACTIVITY=0

EMERGENCY OVERVIEW:
COLOR: black
PHYSICAL FORM: changes from solid to liquid as temperature increases
ODOR: aromatic odor
SIGNAL WORD: WARNING!
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, skin cancer, scrotal cancer, bladder cancer, lung cancer, (See Section 11 for additional information on potential hazards of constituents of the product.)
PRECAUTIONARY STATEMENTS: Do not breathe dust. Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Avoid creation of dust. Use only with adequate ventilation. Wash thoroughly

after handling. Observe good hygiene and safety practices when handling this product. Do not use this product until the MSDS has been read and understood.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: changes in body temperature, vomiting, difficulty breathing, headache, drowsiness, dizziness, loss of coordination, convulsions, lung cancer, bladder cancer
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation, sensitivity to sunlight, skin discoloration, skin disorders, thermal burns from heated material
LONG TERM EXPOSURE: irritation, sensitivity to sunlight, skin disorders, skin cancer, scrotal cancer
EYE CONTACT:
SHORT TERM EXPOSURE: irritation, sensitivity to sunlight, eye damage, thermal burns from heated material
LONG TERM EXPOSURE: irritation, sensitivity to sunlight, eye damage
INGESTION:
SHORT TERM EXPOSURE: irritation, nausea, vomiting, stomach pain
LONG TERM EXPOSURE: no information on significant adverse effects

3. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: HIGH TEMPERATURE COAL TAR PITCH
CAS NUMBER: 65996-93-2
PERCENTAGE: 100

COMPONENT: FLUORANTHENE
CAS NUMBER: 206-44-0
PERCENTAGE: 3.0-3.5

COMPONENT: PHENANTHRENE
CAS NUMBER: 85-01-8
PERCENTAGE: 2.6-3.2

COMPONENT: PYRENE
CAS NUMBER: 129-00-0
PERCENTAGE: 2.3-2.6

COMPONENT: 1,2-BENZANTHRACENE
CAS NUMBER: 56-55-3
PERCENTAGE: 1.2-1.4

COMPONENT: 1,2-BENZPHENANTHRENE
CAS NUMBER: 218-01-9
PERCENTAGE: 1.1-1.4

COMPONENT: BENZO(A)PYRENE
CAS NUMBER: 50-32-8

PERCENTAGE: 1.1-1.3

COMPONENT: BENZO(G,H,I)PERYLENE
CAS NUMBER: 191-24-2
PERCENTAGE: 0.84-1.2

COMPONENT: INDENO(1,2,3-CD)PYRENE
CAS NUMBER: 193-39-5
PERCENTAGE: 0.82-0.99

COMPONENT: BENZO(B)FLUORANTHENE
CAS NUMBER: 205-99-2
PERCENTAGE: 0.81-0.91

COMPONENT: DIBENZO(A,H)PYRENE
CAS NUMBER: 189-64-0
PERCENTAGE: 0.58-0.87

COMPONENT: BENZO(J)FLUORANTHENE
CAS NUMBER: 205-82-3
PERCENTAGE: 0.58-0.64

COMPONENT: BENZO(K)FLUORANTHENE
CAS NUMBER: 207-08-9
PERCENTAGE: 0.54-0.61

COMPONENT: CARBAZOLE
CAS NUMBER: 86-74-8
PERCENTAGE: 0.38-0.48

COMPONENT: ACENAPHTHENE
CAS NUMBER: 83-32-9
PERCENTAGE: 0.28-0.47

COMPONENT: DIBENZO(A,E)PYRENE
CAS NUMBER: 192-65-4
PERCENTAGE: 0.22-0.37

COMPONENT: DIBENZO(A,I)PYRENE
CAS NUMBER: 189-55-9
PERCENTAGE: 0.20-0.25

COMPONENT: DIBENZ(A,H)ANTHRACENE
CAS NUMBER: 53-70-3
PERCENTAGE: 0.20-0.25

COMPONENT: NAPHTHALENE
CAS NUMBER: 91-20-3
PERCENTAGE: 0.03-0.24

COMPONENT: 5-METHYLCHRYSENE
CAS NUMBER: 3697-24-3
PERCENTAGE: 0.08-0.13

COMPONENT: QUINOLINE
CAS NUMBER: 91-22-5
PERCENTAGE: 0.0-0.01

COMPONENT: DIPHENYL
CAS NUMBER: 92-52-4
PERCENTAGE: 0.0-0.01

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: For thermal burns, cool affected areas as quickly as possible by drenching or immersing in water. Wash skin with soap and water for at least 15 minutes, or use a waterless handcleaner, while removing contaminated clothing and shoes. Get medical attention, if needed.

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention, if needed.

INGESTION: DO NOT induce vomiting. If a large amount is swallowed, get medical attention. Do not give anything by mouth to unconscious or convulsive person. If vomiting occurs, keep head lower than hips to help prevent aspiration.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Dust/air mixtures may ignite or explode. Minimum dust concentration required is 0.35 oz/ft3. Containers may rupture or explode if exposed to heat.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical, regular foam, water spray

FIRE FIGHTING: Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Use extinguishing agents appropriate for surrounding fire. Keep unnecessary people away, isolate hazard area and deny entry.

FIRE FIGHTING PROTECTIVE EQUIPMENT: Full fire fighting turn-out gear (bunker gear).

SENSITIVITY TO MECHANICAL IMPACT: No

SENSITIVITY TO STATIC DISCHARGE: Yes (dust)

FLASH POINT: >374 F (>190 C) (COC)
AUTOIGNITION: >750 F (>399 C)
FLAMMABILITY CLASS (OSHA): IIIB

6. ACCIDENTAL RELEASE MEASURES

WATER RELEASE:
Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:
Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. In Canada, report releases to provincial authorities, municipal authorities, or both, as required. Due to the concentration of Benzo(a)pyrene and the CERCLA (40 CFR 302.4) reportable quantity of 1 pound, the release of 77 pounds (7 gallons) of this product requires National Response Center notification.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Label all containers. Keep container in a well-ventilated place. Keep away from heat, sparks and flame. Protect from physical damage. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30).

HANDLING: Avoid contact with eyes, skin and clothing. Avoid creation of dust. Avoid breathing vapors of heated materials. When using, do not eat, drink or smoke. Wash exposed areas thoroughly with soap and water after skin contact and before eating, drinking, using tobacco products, or restrooms. Use protective skin cream on exposed skin before and during work shift. Remove and launder contaminated clothing separately from other laundry before reuse. Maximum recommended heating temperature during product application is 400 F.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
HIGH-TEMP. COAL TAR PITCH:
COAL TAR PITCH VOLATILES:
0.2 mg/m3 OSHA TWA (benzene soluble fraction)
0.2 mg/m3 ACGIH TWA (benzene soluble fraction)
0.1 mg/m3 NIOSH recommended TWA 10 hour(s) (cyclohexane extractable fraction)

VENTILATION: Ensure adequate ventilation. Ensure compliance with applicable exposure limits.

EYE PROTECTION: ANSI Z87.1-1989 approved safety glasses with side shields. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. At elevated temperatures: A faceshield is recommended.

CLOTHING: Wear appropriate clothing. When material is at an elevated temperature, wear appropriate heat resistant clothing. Remove and launder contaminated clothing separately from other laundry before reuse.

GLOVES: Wear appropriate gloves. When material is at an elevated temperature, wear appropriate heat resistant gloves.

RESPIRATOR: If the applicable TLVs and/or PELs are exceeded, use canister or cartridge respirators, which are MSHA/NIOSH-approved, with organic vapor cartridges and high-efficiency particulate filters.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
COLOR: black
PHYSICAL FORM: changes from solid to liquid as temperature increases
ODOR: aromatic odor
BOILING POINT: >464 F (>240 C)
FREEZING POINT: Not available
SOFTENING POINT: 126-140 F (52-60 C)
VAPOR PRESSURE:
VAPOR DENSITY (air=1): >1
SPECIFIC GRAVITY (water=1): 1.3 @ 15.5 C
WATER SOLUBILITY: almost insoluble
PH: Not applicable
VOLATILITY: Not available
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not available
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: benzene, ether, carbon disulfide, chloroform
Slightly Soluble: alcohol, acetone

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

INCOMPATIBILITIES: oxidizing materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: carbon monoxide, carbon dioxide, oxides of nitrogen, polynuclear

aromatic hydrocarbons

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

COAL TAR ROOFING PITCH:
CARCINOGEN STATUS: OSHA: No, NTP: Yes, IARC: Yes, (See below for additional information on component carcinogen status)
TARGET ORGANS: respiratory system, skin, eyes, bladder, scrotum
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders, skin disorders, central nervous system disorders (i.e. headache, drowsiness, dizziness, loss of coordination)
ADDITIONAL DATA: This product is coal tar pitch. Volume 35 of the IARC monograph states that there is sufficient evidence that coal tar pitches are carcinogenetic in humans. IARC's conclusion is based upon studies suggesting an association between skin cancer and chronic occupational dermal exposure to coal tar pitches and upon other historical studies and anecdotal reports showing an association between dermal exposure to coal tar pitch and scrotal cancer in the absence of good hygiene practices.

Epidemiological studies of aluminum reduction workers showed an excess risk of developing bladder cancer for workers with chronic inhalation overexposure to coal tar pitch volatiles in excess of the recommended permissible exposure level. Potential exposure conditions expected with application of this product (i.e., high temperature mopping and related applications) are not similar to exposure conditions in the aluminum worker study. Studies also suggest an association between lung cancer and chronic inhalation overexposure to coal tar pitch volatiles in excess of the recommended permissible exposure level. A recent animal study may suggest an association between lung cancer and pulmonary deposition of particulate matter originating from coal tar pitches.

In addition to containing information about the product as a whole, this data sheet also contains information about individual components of the product. Information of this nature may not have been derived from studies or data relating to this product and/or may have been derived from studies or data that did not involve human exposure and involved animal exposure only.

HIGH-TEMP. COAL TAR PITCH:
CARCINOGEN STATUS: NTP: Known Human Carcinogen; IARC: Human Sufficient Evidence, Animal Sufficient Evidence, Group 1; ACGIH: A1 -Confirmed Human Carcinogen (Coal tar pitch volatiles)
LOCAL EFFECTS:
Irritant: skin, eye
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders, skin disorders, central nervous system disorders

POLYCYCLIC AROMATIC HYDROCARBONS:
ADDITIONAL DATA: Some polycyclic aromatic hydrocarbons (PAHs), found in coal tar complex substances, have been reported to cause lung and skin cancer in humans under conditions of poor personal hygiene, prolonged/repeated contact, and exposure to sunlight. The National Toxicology Program (NTP) and IARC have independently classified various PAH compounds present in coal tar substances as reasonably anticipated to be human carcinogens (NTP), probably carcinogenic to humans (IARC Group 2A), possibly carcinogenic to humans (IARC Group 2B), and not classifiable as to carcinogenicity to humans (IARC Group 3). The cancers reported in the studies upon which IARC based its conclusions involved lung, skin,

liver, stomach, kidney and blood cancers in animals. Based on the results of animal experiments PAHs may cause injury to the liver, kidneys, lungs, blood and lymph systems. Some PAH's have also been associated with impaired fertility, heritable genetic damage and birth defects in mice.

NAPHTHALENE:
IRRITATION DATA: 495 mg open skin-rabbit mild; 100 mg eyes-rabbit mild; 0.05 ml/24 hour(s) skin-rabbit severe
TOXICITY DATA: >340 mg/m3/1 hour(s) inhalation-rat LC50; >20 gm/kg skin-rabbit LD50; 490 mg/kg oral-rat LD50
CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; IARC: Human Inadequate Evidence, Animal Sufficient Evidence, Group 2B; ACGIH: A4 -Not Classifiable as a Human Carcinogen
LOCAL EFFECTS:
Irritant: inhalation, skin, eye
ACUTE TOXICITY LEVEL:
Toxic: ingestion
TARGET ORGANS: blood
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: metabolic disorders
ADDITIONAL DATA: May cross the placenta.

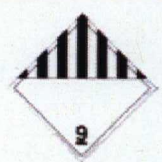
12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

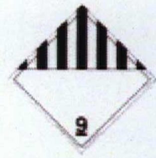
14. TRANSPORT INFORMATION



U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Elevated temperature liquid, n.o.s. RQ
ID NUMBER: UN3257
HAZARD CLASS OR DIVISION: 9
PACKING GROUP: III
LABELING REQUIREMENTS: 9
DOT HAZARDOUS SUBSTANCE(S):
Fluoranthene 100 lb(s) (45.4 kg(s))
1,2-Benzanthracene 10 lb(s) (4.54 kg(s))
1,2-Benzphenanthrene 100 lb(s) (45.4 kg(s))
Benzo(a)pyrene 1 lb(s) (0.454 kg(s))
Benzo(b)fluoranthene 1 lb(s) (0.454 kg(s))
Acenaphthene 100 lb(s) (45.4 kg(s))
Dibenz(a,i)pyrene 10 lb(s) (4.54 kg(s))
Dibenzo(a,h)anthracene 1 lb(s) (0.454 kg(s))
Naphthalene 100 lb(s) (45.4 kg(s))

OTHER INFORMATION: 49 CFR 173.213(c) packaging exemption "DOT-E 11263" for open-top and closed-top sift-proof metal cans and fiber drums. Product in Tank Car or Tank Truck is shipped as 'Elevated temperature liquid, n.o.s.' Product in Drum (open head) or Keg (open head) is shipped as 'Other regulated substances, solid, n.o.s.'

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Other regulated substances, solid, n.o.s. RQ
ID NUMBER: NA3077
HAZARD CLASS OR DIVISION: 9
PACKING GROUP: III
LABELING REQUIREMENTS: 9



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CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Elevated temperature liquid, n.o.s.
UN NUMBER: UN3257
CLASS: 9
PACKING GROUP/RISK GROUP: III

15. REGULATORY INFORMATION

U.S. REGULATIONS:
SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):
PYRENE: 1000/10000 LBS TPQ

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):
PYRENE: 5000 LBS RQ

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):
ACUTE: Yes
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):
FLUORANTHENE
PHENANTHRENE
1,2-Benzanthracene
1,2-Benzphenanthrene (Chrysene)
Benzo(a)pyrene
BENZO(G,H,I)PERYLENE
Indeno (1,2,3-cd)pyrene
BENZO(B)FLUORANTHENE
Dibenzo(a,h)pyrene
BENZO(J)FLUORANTHENE
BENZO(K)FLUORANTHENE
Dibenzo(a,e)pyrene
Dibenzo(a,i)pyrene
Dibenz(a,h)anthracene
NAPHTHALENE
5-METHYLCHRYSENE

STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following:
Soots, tars, and mineral oils (untreated and mildly treated oils and used engine oils)
Cancer (Feb 27, 1987)
1,2-Benzanthracene
Cancer (Jul 01, 1987)
1,2-Benzphenanthrene (Chrysene)
Cancer (Jan 01, 1990)
Benzo(a)pyrene
Cancer (Jul 01, 1987)
Indeno (1,2,3-cd)pyrene
Cancer (Jan 01, 1988)
BENZO(B)FLUORANTHENE
Cancer (Jul 01, 1987)
Dibenzo(a,h)pyrene
Cancer (Jan 01, 1988)
BENZO(J)FLUORANTHENE
Cancer (Jul 01, 1987)
BENZO(K)FLUORANTHENE
Cancer (Jul 01, 1987)
Carbazole
Cancer (May 01, 1996)
Dibenzo(a,e)pyrene
Cancer (Jan 01, 1988)
Dibenzo(a,i)pyrene
Cancer (Jan 01, 1988)
Dibenz(a,h)anthracene
Cancer (Jan 01, 1988)
NAPHTHALENE
Cancer (Apr 19, 2002)

5-METHYLCHRYSENE
Cancer (Apr 01, 1988)
Quinoline and its strong acid salts
Cancer (Oct 24, 1997)

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: D2A.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION:
NAPHTHALENE
CAS NUMBER: 91-20-3
SECTION 4
DIPHENYL
CAS NUMBER: 92-52-4
SECTION 4

CANADA INVENTORY (DSL/NDSL): All components of this product are listed on either the DSL or the NDSL.

16. OTHER INFORMATION

MSDS SUMMARY OF CHANGES
2. HAZARDS IDENTIFICATION
3. COMPOSITION, INFORMATION ON INGREDIENTS
11. TOXICOLOGICAL INFORMATION

The information set forth in this Material Safety Data Sheet does not purport to be all-inclusive and should be used only as a guide. While the information and recommendations set forth herein are believed to be accurate, the company makes no warranty regarding such information and recommendations and disclaims all liability from reliance thereon.

CALEDON
LABORATORY CHEMICALS

MATERIAL SAFETY DATA SHEET — HEXANE

PRODUCT CODE NUMBER(S): 5600-1, 5600-2, 5600-3, 5600-4, 5601-2, 5601-7, 5602-2, 5603-2, 5603-7, 5604-2, 5605-1, 5608-2, 5609-1

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: *Hexane; Normal hexane; Hexanes*

Chemical Family: *Saturated aliphatic hydrocarbon*

Chemical Formula: C_6H_{14}

Product Use: *Laboratory solvent*

Manufacturer's Name and Address:
Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario, L7G 4R9

Telephone No: *(905) 877-0101*

Fax No: *(905) 877-6666*

Emergency Telephone No: *CANUTEC (613) 996-6666*

HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
n-Hexane	>85	50 ppm	110-54-3
Methylpentanes, may include 2-methylpentane	<5	500 ppm	107-83-5
Methylcyclopentane	<10	Not established	96-37-7

PHYSICAL DATA

Physical State: *Liquid*

Odour and Appearance: *Clear, colourless volatile liquid, gasoline-like odour*

Odour Threshold (ppm): *64-244 ppm; poor warning properties, odour threshold exceeds TLV.*

Vapour Pressure (mm Hg): *124 mm Hg at 20°C*

Vapour Density (Air = 1): *2.97*

Evaporation Rate (Ethyl ether = 1): *1.4*

Boiling Point (°C): *67-69°C*

Freezing Point (°C): *-95°C*

pH: *Not applicable*

Specific Gravity: *0.659 at 20°C*

Coefficient of Water/Oil distribution: *LogP(oct)= 3.6*

SHIPPING DESCRIPTION

UN: *1208*

T.D.G. Class: *3*

Pkg. Group: *II*

REACTIVITY DATA

Chemical Stability: *Normally stable.*

Incompatibility with other substances: *Reacts vigorously with chlorine, oxygen and strong oxidizing agents (peroxides, nitrates, perchlorates), increasing risk of fire and explosion. Explodes violently in contact with fluorine. May explode with nitrogen tetroxide. Not corrosive to most metals. May attack some forms of plastic, rubber, and coatings.*

Reactivity:
Avoid heat, sparks, open flame, all ignition sources, and incompatible or combustible materials. Avoid generation of mist. Confined materials may explode upon heating.

Hazardous Decomposition Products: CO_x

FIRE AND EXPLOSION DATA

Flammability: *Extremely flammable liquid and vapour. Vapours form flammable/explosive mixtures with air at or above -21°C. Vapour is heavier than air and may travel considerable distance to source of ignition and flash back. Liquid can float on water and may spread fire. Can accumulate in confined spaces and cause flammability or toxicity hazard. Closed containers may rupture violently when heated.*

Extinguishing Media: *CO_2, dry chemical, foam. Water may be ineffective for extinguishing, but as spray or fog may be used to cool containers and disperse vapours. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (NIOSH/MSHA approved self-contained breathing apparatus) and clothing (Bunker Gear) sufficient to prevent inhalation of mists or vapours, and contact with skin and eyes. Closed containers may rupture violently during fire; withdraw immediately in case of rising sound from vent or discoloration of tank.*

Flash Point (Method Used): *-21°C (TCC)*

Autoignition Temperature: *225°C*

Upper Flammable Limit (% by volume): *7.5*

Lower Flammable Limit (% by volume): *1.1*

Hazardous Combustion Products: CO_x

Sensitivity to Impact: *Probably not sensitive*

Sensitivity to Static discharge: *Vapour is readily ignited by static discharge. Liquid can accumulate static charge by flow or agitation.*

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:

LD_{50}: *(oral, adult rat) 28,710 mg/kg; (oral, 14-day old rat) 15,840 mg/kg; (dermal, rabbit) >2g/kg*
LC_{50}: *(rat) 48,000 ppm/4h*

Effects of Acute Exposure to Product:

Inhaled: *Limited information specific to hexane available; most information relates to mixtures of solvents. Available information suggests low toxicity. Exposure to high vapour concentrations may cause CNS depression with nausea, and headache, dizziness, unconsciousness. In studies with human volunteers, 10 minute exposure at 2000 ppm produced no symptoms, 10 minutes at 5000 ppm caused dizziness and giddiness. If atmospheric oxygen is displaced by hexane, where vapour concentrations are high, life-threatening asphyxiation can occur. Symptoms are drowsiness, loss of coordination, loss of judgement, sometimes masked by a state of euphoria, eventual loss of consciousness and death.*

In contact with skin: *May cause irritation, burning sensation, reddening. May be absorbed through skin, but not likely in harmful amounts.*

In contact with eyes: *Vapour and liquid may cause mild irritation, with tearing, redness, and pain. No human or animal information available.*

Ingested *No specific human information available. May cause burning sensation in the mouth and throat, nausea, and vomiting. Animal testing indicates low oral toxicity. However, may be aspirated into the lungs during ingestion or vomiting, which can cause pulmonary edema, chemical pneumonitis, and death.*

MSDS | HEXANE

CODE:5600-1, 5600-2, 5600-3, 5600-4, 5601-2, 5601-7, 5602-2. 5603-2, 5603-7, 5604-2, 5605-1, 5608-2, 5609-1

Effects of Chronic Exposure to Product:

Causes harm to the nervous system producing numbness or tingling in the extremities, spasms in the legs, tiredness, muscle weakness and more severe nerve damage. Peripheral neuropathy developed within 7 months in mice at 250 ppm. Methyl pentanes have produced kidney damage in male rats only, but no comparable health hazard for kidney disease is known to occur in humans. Prolonged skin contact can cause dermatitis. Abnormal colour perception and pigment changes in the eyes have been reported in workers exposed to 423 to 1,280 ppm for five years or more. Mild forms of anemia have been associated with exposure - reversible on termination of exposure.

Carcinogenicity: *Insufficient information available*

Teratogenicity: *Has shown fetotoxic effects in animal testing at maternally toxic levels only (RTECS No. MN 9275000).*

Reproductive Effects: *Testicular damage in male rats at concentrations that produced other toxicity. No human information available.*

Mutagenicity: *Negative results in animal testing, and in cultured human cells with or without metabolic activation.*

Synergistic Products: *Neurotoxic and respiratory effects enhanced by both methyl ethyl ketone and lead acetate, but decreased by toluene.*

PREVENTIVE MEASURES

Engineering Controls: *Non-sparking, grounded, separate, exhaust ventilation required.*

Respiratory Protection: *Dust/mist mask. Fumehood. To 500 ppm: NIOSH/MSHA approved supplied-air respirator or self-contained breathing apparatus. To 1,100 ppm: continuous flow supplied-air respirator, or full face-piece supplied-air respirator or self-contained breathing apparatus. Higher or unknown concentrations, as in fire or spill conditions, full-face-piece positive-pressure self-contained breathing apparatus or positive pressure, full face-piece air-supplied respirator with an auxiliary positive pressure self-contained breathing apparatus.*

Eye Protection: *Chemical safety goggles and/or face shield.*

Skin Protection: *Nitrile rubber, polyvinyl alcohol, Viton™, Viton™/Butyl rubber, Teflon™, Barrier (PE/PA/PE), Silver Shield/4H™(polyethylene/ethylene vinyl alcohol), Responder™, Trellchem™HPS, Tychem™ BR/LV, Tychem™ TK gloves. Other impervious or resistant protective clothing sufficient to prevent contact.*

Other Personal Protective Equipment: *Safety shower and eye wash in work area.*

Leak and Spill Procedure: *Evacuate and ventilate area. Eliminate all sources of ignition. Cleanup personnel must be thoroughly trained in the hazards of this material and must wear protective equipment and clothing sufficient to prevent inhalation of vapours or mists, and contact with skin, eyes or clothing. Contain spill and collect using inert absorbent material. Prevent from entering sewers or waterways. Do not touch spilled material or contaminated absorbent. Contaminated absorbent may pose the same hazards as the chemical; treat with caution. Flush area of spill with copious amounts of running water.*

Waste Disposal: *Follow all federal, provincial, and local regulations.*

Handling Procedures and Equipment: *EXTREMELY FLAMMABLE, TOXIC. Personnel working with this substance must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing suitable for the application. Keep away from heat, sparks, flame, and all sources of ignition. Post "No Smoking" signs. Ground and bond drums, transfer vessels, hoses and piping, during liquid transfer. Ground clips must contact bare metal. Use non-sparking tools. Use inert gas in containers or storage vessels to reduce fire/explosion hazard Keep work area free of other materials that can burn. Keep aisles and exits clear of obstruction. Keep storage and work areas free of combustible or incompatible materials. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Keep containers closed when not in use. Empty containers may contain hazardous residues; treat with caution. Do not return contaminated material to the original container. Have absorbents readily availabe for leaks or spills. Have appropriate fire extinguishers available.*

Storage Requirements: *Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight, and away from heat and ignition sources, and all incompatible materials. Protect from damage. Keep containers tightly closed when not in use. Inpsect regularly for leaks or damage. Storage facilities should be made of fire-resistant materials, and have raised sills or ramps, with trenching to a safe area.*

FIRST AID MEASURES

Specific Measures:

Eyes: *Immediately flush eyes with gently running water, holding eyelids open while flushing, for five to ten (5-10) minutes, or until no trace of chemical remains. Take care not to flush contaminated water into unaffected eye. If irritation persists, get medical attention.*

Skin: *Remove contaminated clothing(including shoes, watches, belts, and rings). Wash affected areas with large amounts of running water and non-abrasive soap, for five to ten (5-10) minutes, or until no trace of chemical remains. If irritation persists, get medical attention.*

Inhalation: *IMMEDIATELY remove casualty from contaminated area to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Remove any sources of ignition. Give oxygen and get medical attention for any breathing difficulty. If breathing has stopped give artificial respiration. If breathing and pulse are absent give CPR. Immediately obtain medical attention. Stay with casualty until medical assistance is reached.*

Ingestion: *DO NOT INDUCE VOMITING. Danger of aspiration with emesis. If casualty is alert and NOT convulsing, rinse mouth with water and give 1 to 2 cups of water to drink to dilute material. IMMEDIATELY get medical attention. If spontaneous vomiting occurs, have casualty lean forward with head down to avoid breathing in of vomitus. Rinse mouth and give more water to drink.*

REFERENCES USED

CCINFO disc: Cheminfo, MSDS's, December 2005

Budavari: The Merck Index, 12th ed., 1997

Royal Society of Chemistry: Material Safety Data Sheets, Vol. 1, 1992

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987

Sax: Dangerous Properties of Industrial Materials, 5th ed., 1979

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: *January 31, 1989*

Revision: *December 2005*

MSDS: *5600-1, 5600-2, 5600-3, 5600-4, 5601-2, 5601-7, 5602-2. 5603-2, 5603-7, 5604-2, 5605-1, 5608-2, 5609-1*

Proposed WHMIS Designation: *B2; D2B*

Prepared by: Caledon Laboratories Ltd. (905) 877-0101

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Manufacturer: AccuStandard, Inc.
125 Market Street
New Haven, CT 06513

Date MSDS Printed: 1/6/2006
Preparation Date: 1/6/2006
Infomation Phone Number: 203-786-5290
Emergency Phone Number: 203-786-5290
Hours: Mon. to Fri. 8am-5pm EDT

MSDS Number: IS-7008-0.05X-50ML
Product Name: Sulfide
Synonyms: N/A
Formula: N/A
Molecular Weight: N/A

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Component(s) (3)	CAS #	Appr. %	ACGIH-TLV (mg/m3) TWA	STEL	skin	OSHA-PEL (mg/m3) TWA	STEL	skin
Sodium sulfide	1313-82-2	0.006						
Water	7732-18-5	99.950						
Zinc acetate dihydrate	5970-45-6	0.044						

Zinc acetate dihyrate is added as a preservative.

SECTION 3 - HAZARDS IDENTIFICATION

Symptoms of Exposure:

May be irritating to eyes, skin, and mucous membranes.

To the best of our knowledge the chemical, physical and toxicological properties of the component ingredients have not been thoroughly investigated.

Potential Health Effects:

May be harmful if inhaled, absorbed through the skin, or swallowed.

Routes of Entry:

Inhalation, ingestion or skin contact.

Carcinogenicity:

This product is or contains a component that is not listed (ACGIH, IARC, NTP, OSHA) as a cancer causing agent.

SECTION 4 - FIRST AID MEASURES

Emergency First Aid:

Get medical assistance for all cases of overexposure.

Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

Eye contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

Ingestion: Drink water and induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: Noncombustible

Flammable Limits LEL (%): N/A

Flammable Limits UEL (%): N/A

Autoignition Temperature: N/A

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media:

Use any extinguishing media suitable for adjacent material.

Fire Fighting Procedures:

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spill Response:

Wear self-contained breathing apparatus and full protective clothing. Prevent contact with skin or eyes. Stop leak if you can do so without risk. Absorb on sand or vermiculite, take up and containerize for proper disposal. Ventilate area. Flush spill area with water. Comply with Federal, State, and local regulations.

SECTION 7 - HANDLENG AND STORAGE

Store in a tighly closed container.

Keep refrigerated.

Do not breathe vapor or mist.

Do not get in eyes, on skin, or on clothing.

This product should only by used by persons trained in the safe handling of hazardous chemicals.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls and Personal Protection Equipment (PPE):

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your safety equipment supplier). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves should be worn to prevent skin contact.

(Butyl, chloroprene, natural rubber or equivalent)

Safety glasses with side shields should be worn at all times.

General Hygiene Considerations:

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear liquid

Odor: N/A

pH: N/A

Vapor Pressure: 17.5 mmHg (20 °C)

Vapor Density (Air = 1): N/A

Boiling Point: 100 °C (212 °F)

Melting Point: 0 °C (32 °F)

Solubility in Water (%): Very soluble

Specific Gravity (H_2O = 1): 1.000 g/cm3

Flash Point: Noncombustible

Explosion Limits (%): N/A to N/A

Autoignition Temperature: N/A

Percent Volatile: N/A

Evaporation Rate (BuAc = 1): N/A

Molecular Weight: N/A

Molecular Formula: N/A

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Conditions To Avoid: None indicated

Materials To Avoid: Acids

Hazardous Decomposition: None indicated

Hazardous Polymerization: Does not occur

SECTION 11 - TOXICOLOGICAL INFORMATION

See section 3 for specific toxicological information for the ingredients of this product.

SECTION 12 - ECOLOGICAL INFORMATION

By complying with sections 6 and 7 there will be no release to the environment.

SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

DOT UN Number: NR Shipping Class: NR Packing Group: NR IRRITANT

SECTION 15 - REGULATORY INFORMATION

In addition to Federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

The following regulations apply:

Not all components are listed on the TSCA Inventory. For reasearch and development use only. Not for manufacturing or commercial purposes.

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI and CHIPs regulations.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. It is intended for use only by persons having the necessary technical skill and at their own discretion and risk. Since conditions and manner of use are outside our control, we make
NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE.

Legend : N/A = Not Available   ND = Not Determined   NR = Not regulated

*** End of Document ***

Material Safety Data Sheet

Revision Date: 01/09/09

Restek Corporation
110 Benner Circle
Bellefonte, PA 16823-8812
(814) 353-1300
(800) 356-1688 Fax: (814) 353-1309

I. PRODUCT IDENTIFICATION

Catalog Number / Product Name:	31698, 31698-5XX, & 31798 / TPH n-alkane Markers
Revision Number:	5
Intended use:	For Laboratory use only

II. HAZARD INDENTIFICATION

Emergency Overview:

Physical Hazards: F - Highly flammable

Routes of Entry:	Eye contact Skin contact Ingestion Inhalation
Target Organs Potentially Affected By Exposure:	skin, eyes, respiratory system, CNS
Chemical interactions That Change Toxicity:	None Known
Medical Conditions Aggravated By Exposure:	Skin disease including eczema and sensitization Respiratory disease including asthma and bronchitis Eye disease

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.High concentrations may be fatal.
Skin Contact:	Can cause minor skin irritation, defatting, and dermatitis.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to pennanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	No data.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Skin Contact:	Upon prolonged or repeated contact, can cause minor skin irritation, defatting, and dermatitis.

III. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS #	EINEC #	% Composition
Pentane	109-66-0	203-692-4 201-142-8	99.920000

IV. FIRST-AID MEASURES

Inhalation:	Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately
Eyes:	Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.
Skin Contact:	Wash with soap and water. Get medical attention if irritation develops or persists.
Ingestion:	Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this MSDS. Induce vomiting as a last measure. Induced vomiting may lead to aspiration of the material into the lungs potentially causing chemical pneumonitis that may be fatal.

V. FIRE FIGHTING MEASURES

Extinguishing Media:	Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water spray or fog may also be effective for extinguishing if swept across the base of the fire. Water can also be used to absorb heat and keep exposed material from being damaged by fire. Water may be ineffective in fire fighting due the material (or component(s) low flash point, low solvent density, and limited miscibility with water.
Fire and/or Explosion Hazards:	Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back Empty containers that retain product residue (liquid, solid/sludge, or vapor) can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose container to heat, flame, sparks, static electricity, or other sources of ignition. Any of these actions can potentially cause an explosion that may lead to injury or death.
Fire Fighting Methods and Protection:	Do not enter fire area without proper protection including self-contained toxic breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface. Use water spray/fog for cooling.
Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide

VI. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment:	Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section VIII of this MSDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.
Methods for Clean-up:	Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section VIII at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

VII. HANDLING AND STORAGE

Handling Technical Measures and Precautions:	Mildly irritating material. Avoid unnecessary exposure. Do not enter storage area unless adequately ventilated Ground and bond containers when transfering material Avoid contact with material. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Limit quantity of material stored. Store in a cool place in original container and protect from sunlight Keep away from heat, sparks, and flame

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Pentans	109-66-0	1500 ppm IDLH (10% LEL)		600 ppm TWA; 1770 mg/m3 TWA	1000 ppm TWA; 2950 mg/m3 TWA

United Kingdom:

Chemical Name	CAS No.	EINEC No.	WEL-STEL	WEL-TWA
Pentane	103-65-0	203-692-4 201-142-8	1500 ppm STEL; 5400 mg/m3 STEL	600 ppm TWA; 1800 mg/m3 TWA

France:

Chemical Name	CAS No.	EINEC No.	VLCTs-STEL	VME-TWA
Pentane	109-56-0	203-592-4 201-142-8	No data.	1000 ppm VME (restrictive limit); 3000 mg/m3 VME (restrictive limit)

Germany:

Chemical Name	CAS No.	EINEC No.	VELs
Pentane	103-65-0	203-692-4 201-142-8	1000 ppm TWA (exposure factor 2); 3000 mg/m3 TWA (exposure factor 2)

Personal Protection:

Engineering Measures:	Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.Engineering controls must be designed to meet the OSHA chemical specific standard in 29 CFR 1910. Explosion proof exhaust ventilation should be used.
Respiratory Protection:	Respiratory protection will be required when handling this product Use respirators only if ventilation cannot be used to eliminate symptoms or reduce the exposure to below acceptable levels.Follow a respiratory protection program that meets 29 CFR 1910.134 and ANSI Z88.2 requirements whenever work place conditions warrant the use of a respirator. Wear a NIOSH approved respirator if any exposure is possible.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handiing this product, Do not wear contact lenses.Wear goggles and a Face shield
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regulariy. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Colorless
Odor:	Mild
pH:	No data available.
Vapor Density:	2.5 (air = 1)
Melting Point:	<-50 °C
Flash Point:	No data available.
Flammability:	Highly Flammable

Upper Flammable/Explosive Limit, % in air:	7.8
Lower Flammable/Explosive Limit, % in air:	1.4
Autoignition Temperature:	260 deg C
Specific Gravity:	630 kg/m3 at 15°C
Evaporation Rate:	No data available.
Odor Threshold:	No data available.
Solubility:	Negligible; 0-1%
VOC % by weight:	No data available.
Molecular Weight:	No data available.

X. STABILITY AND REACTIVITY:

Stability:	Stable under normal conditions.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents

XI. TOXICOLOGICAL INFORMATION:

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Pentane	109-66-0	No data available

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available.	

NIOSH:

Chemical Name	CAS No.
No data available.	

NTP:

Chemical Name	CAS No.
No data available.	

IARC:

Chemical Name	CAS No.	Group No.
No data.		Group 1
No data.		Group 2A
No data.		Group 2B

XII. ECOLOGICAL INFORMATION:

Overview:	Slight ecological hazard. In high concentrations, this product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	No data
Ecological Toxicity Data:	0

XIII. DISPOSAL CONSIDERATIONS:

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste.

Material Safety Data Sheet

Revision Date: 01/09/09

Disposal Methods:	Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging:	Comply with all Local, State, Federal, and Provincial Environmental Regulations.

XIV: TRANSPORTATION INFORMATION:

United States:	
DOT Proper Shipping Name:	Pentanes
UN Number:	UN1265
Hazard Class:	3
Packing Group:	II
International:	
IATA Proper Shipping Name:	Pentanes, liquid
UN Number:	UN1265
Hazard Class:	3
Packing Group:	II
Marine Pollutant:	Yes

XV. REGULATORY INFORMATION:

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Pentane	109-66-0	-	-	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Pentane	109-66-0	X	X	X	X

EU Directives Classification:

Hazard Symbols

Risk Phrases:	R48/20:Harmful: danger of serious damage to health by prolonged exposure through inhalation R11:Highly Flammable
Safety Phrases:	S16:Keep away from sources of ignition - No smoking

XVI: ADDITIONAL INFORMATION

Prior Version Date: 09/01/06

Material Safety Data Sheet

Revision Date: 01/09/09

Disclaimer

RESTEK CORPORATION PROVIDES THE DESCRIPTIONS, DATA AND INFORMATION CONTAINED HEREIN IN GOOD FAITH BUT MAKES NO REPRESENTATION AS TO ITS COMPREHENSIVENESS OR ACCURACY. IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, RESTEK CORPORATION RECOMMENDS YOU PERFORM AN ASSESSMENT TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED, DATA OR INFORMATION SET FORTH. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION,OR DATA PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, THE DESCRIPTIONS, DATA AND INFORMATION FURNISHED HEREUNDER ARE GIVEN GRATIS. NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DATA AND INFORMATION GIVEN ARE ASSUMED. ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

ATTACHMENT 3
SAFETY RECORD FORMS

FIELD TEAM HEALTH AND SAFETY PLAN REVIEW

ANCHOR QEA, LLC

I have read a copy of the HASP, which covers field activities that will be conducted to investigate specified areas on and adjacent to the Former Bremerton MGP Site in Bremerton, Washington. I understand the health and safety requirements of the project, which are detailed in this HASP.

Signature   Date

Signature   Date

Signature   Date

Signature   Date

Signature   Date

Signature   Date

Signature Date

Signature Date

Signature Date

Signature Date

APPENDIX B
ADMINISTRATIVE ORDER FOR A POLLUTION INCIDENT
(OCTOBER 20, 2010)

U.S. Department of Homeland Security
United States Coast Guard

Commander
United States Coast Guard
Sector Puget Sound

1519 Alaskan Way South, Bldg 4
Seattle, WA 98134-1192
Staff Symbol: sm
Phone: (206) 217-6002
Fax: (206) 217-6178

16600

OCT 20 2010

ADMINISTRATIVE ORDER FOR A POLLUTION INCIDENT

Cascade Natural Gas Corporation
Ms. Abby Krebsbach
c/o CT Corporation Systems
1801 West Bay Drive NW
Suite 205
Olympia, WA 98502

SITUATION: You have identified yourself as a potential responsible party for an underground cement pipe that is releasing coal tar creosote, hereby identified as Manufactured Gas Plant (MGP) coal tar creosote waste, into the mid tidal zone of Sinclair Inlet, a navigable waterway of the United States. I have determined the underground pipe poses a substantial threat of creating a release of a hazardous substance into the environment.

DIRECTIONS: The Coast Guard is authorized by Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601) to act, consistent with the National Contingency Plan, to take any action necessary to protect the public health or welfare of the environment. In addition, the threat of a release may present an imminent and substantial endangerment to the public health or welfare of the United States, including fish, shellfish, and wildlife, public and private property, shorelines, beaches, habitats, and other living and nonliving natural resources under the jurisdiction or control of the United States. Among those who may be subjected to such endangerment are the waters of the Sinclair Inlet and the residents of Bremerton, Washington. Therefore I direct you to take the following actions:

1. Prevent further contamination of the marine environment by permanently securing the release of the MGP waste.

2. Remove the cement pipe and all visible MGP Waste contamination from the marine environment.

3. Cleanup operations shall begin no later than 48 hours from the date of this order.

4. You will submit a detailed plan to U.S. Coast Guard Sector Puget Sound for the removal of the MGP Waste and associated pipe prior to conducting any operations.

(Continued)

PENALTIES: Failure or refusal to provide all reasonable cooperation and assistance requested by the Federal On Scene Coordinator or failure or refusal to comply with this order will subject you to a civil penalty of up to $37,500 per day of violation.

Should you require further information regarding this matter, please contact Marine Science Technician Danielle Wood at the above address and telephone number.

Sincerely,

FOR

S. J. FERGUSON
Captain, U.S. Coast Guard
Federal On Scene Coordinator

Print name and sign	Date	Witness	Date

Copy: Washington State Department of Ecology
Commander, Thirteenth Coast Guard District (drm)
United States Environmental Protection Agency
Kitsap County Department of Public Health

APPENDIX C
CASCADE NATURAL GAS RESPONSE TO ORDER (OCTOBER 29, 2010)

CASCADE NATURAL GAS
CORPORATION
A Subsidiary of MDU Resources Group, Inc.
In the Community to Serve®

8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166
TELEPHONE (509) 734-4500 FACSIMILE (509) 737-9803
www.cngc.com

Via Email and US Mail

October 29, 2010

S.J. Ferguson
Captain, U.S. Coast Guard
Federal On-Scene Coordinator
1519 Alaskan Way South, Building 4
Seattle, WA 98134-1192

RE: Administrative Order for Pollution Incident, Bremerton, Washington

Dear Captain Ferguson:

This letter provides Cascade Natural Gas Corporation's ("Cascade") formal response to the Administrative Order for a Pollution Incident ("AO") issued by the U.S. Coast Guard ("USCG") under Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act. The AO is dated October 20, 2010, and was served on Cascade on October 27, 2010.

As directed by the USCG, Cascade will conduct the time critical removal action (the "Removal Action") described in the Anchor QEA Work Plan for the Former Bremerton MGP Site ("Work Plan"), as finally approved by the USCG and the Unified Command. As you know, Cascade commenced work relating to the Removal Action on October 19, 2010, immediately after its first meeting with the Unified Command. Cascade continues work in preparation for the Removal Action. Cascade will conduct the Removal Action according to the Work Plan and the schedule provided in the Work Plan. The current schedule calls for mobilization of equipment to begin next week and for the pipe plugging, pipe removal, sediment removal, and sediment capping activities to commence the week following.

Cascade is undertaking the Removal Action as directed by the USCG and in recognition of the time critical nature of the situation. However, Cascade does not admit liability. Nor does Cascade admit any factual allegations in the AO.

Cascade understands the Removal Action outlined in the Work Plan is necessary and is consistent with the National Contingency Plan. Cascade further understands that the USCG, through the Unified Command, is coordinating with federal, state and local agencies on best management practices and other measures necessary to meet the substantive requirements of applicable or relevant and appropriate requirements, and that such measures will be incorporated into the approved Work Plan. Finally, Cascade understands that its completion of the work described in the Work Plan will stabilize the site and will fully satisfy the requirements of the AO. Any subsequent removal or remedial action at the site will be conducted under the oversight of the U.S. Environmental Protection Agency.

Please do not hesitate to contact me with any questions.

Sincerely,

CASCADE NATURAL GAS CORPORATION

K. Frank Morehouse by ASL

K. Frank Morehouse
Executive Vice President and General Manager

cc: Danielle Wood, USCG
Kathy Parker, EPA
Elizabeth McKenna, EPA
Abbie Krebsbach, Cascade
Kalle Kuether, Cascade
Dan Kuntz, Cascade
Howard Jensen, Tupper Mack Brower Jensen Wells
Andy Salter, Salter Joyce Ziker

Appendix B

APPENDIX B
WASHINGTON STATE DEPARTMENT OF ECOLOGY HYDROCARBON IDENTIFICATION ANALYSIS

Manchester Environmental Laboratory

7411 Beach Dr E, Port Orchard, Washington 98366

Case Narrative

September 30, 2010

Subject: Kitsap Mystery Oil Project

Sample(s): 1009096-01

Officer(s): Brad Martin

Work Order#: 1009096

By: Boh Carrell

Hydrocarbon Identification Analysis

Analytical Method(s)

The sample was extracted with methylene chloride then analyzed, along with a method blank and various petroleum product standards, by gas chromatography with flame ionization detection (GC/FID). This method is consistent with a modified EPA SW-846 Method 8015B and/or ASTM Method D-3328.

Holding Times

The sample was analyzed within the recommended method holding times.

Calibration

This is not applicable in the traditional sense since only various petroleum products standards are analyzed to establish chromatographic product "fingerprints".

Blanks

No analytically significant levels of any petroleum product or hydrocarbon were detected in the method blank (B10I285-BLK1) associated with this sample.

Comments

The HCID analysis showed that this sample contained a significant amount of coal tar creosote. Creosote is primarily composed of polyaromatic hydrocarbons (PAHs).

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Hydrocarbon Identification

Project Name: Kitsap Mystery Oil
Work Order: 1009096
Project Officer: Martin, Brad

Analyte: Hydrocarbon identification
Method: HYDRO-ID
Matrix: Other

Sample #	Sample ID	Collected	Analyzed	Result
1009096-01	BOIS	09/24/10	09/30/10	This sample contains a significant amount of coal tar creosote.

QC Results for Batch ID: B10I285

Method Blank

B10i285-BLK1	Blank	No detectable petroleum hydrocarbons or products found.

Authorized by: Banell

Release Date: 9-30-10

Appendix C

APPENDIX C
U.S. ENVIRONMENTAL PROTECTION AGENCY ANALYTICAL DATA

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537; Fax: (206) 621-9832

MEMORANDUM

DATE: November 8, 2010

TO: Bryan Vasser, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: Inorganic Data Quality Assurance Review, Bremerton Gasworks ER Site, Bremerton, Washington

REF: TDD: 10-10-0003 PAN: 002233.0607.01RZ

The data quality assurance review of one sediment sample collected from the Bremerton Gasworks ER site in Bremerton, Washington, has been completed. Toxicity Characteristic Leaching Procedure (TCLP) metals analyses (40 CFR part 261 and EPA methods 200.8 and 1631E) was performed by Friedman and Bruya, Inc., Seattle, Washington.

The sample was numbered: Site Composite

Data Qualifications:

1. Sample Holding Times: Acceptable.

The sample was maintained at < 6°C. The individual samples that made up the Site Composite were collected on October 9 or 10, 2010, the composite samples was TCLP extracted on October 20, 2010, and was analyzed by October 25, 2010, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

2. Initial and Continuing Calibration: Acceptable.

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits of 90% to 110%. All AA recoveries were within QC limits of 80% to 120%.

3. Blanks: Acceptable.

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks.

4. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

5. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

6. Matrix Spike Analysis: Acceptable.

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike and spike duplicate recoveries were within the QC limits.

7. Duplicate Analysis: Acceptable.

A laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits.

8. Laboratory Control Sample Analysis: Acceptable.

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

9. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample detection limits but greater than the instrument detection limits or because quality control criteria limits were not met.

R - The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	Site Composite	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/20/10	Lab ID:	010120-11/23/25/31
Date Analyzed:	10/25/10	Data File:	010120-11, 23, 25, 31.040
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125
Indium	95	60	125
Holmium	96	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Chromium	<1	5.0
Arsenic	<1	5.0
Selenium	<1	1.0
Silver	<1	5.0
Cadmium	<1	1.0
Barium	<1	100
Lead	<1	5.0

11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/02/10
Date Received: 10/11/10
Project: 10JS-10/11/10-0001, F&BI 010120
Date Extracted: 10/20/10
Date Analyzed: 10/22/10

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS IN ACCORDANCE WITH EPA METHOD 1631E AND 40 CFR PART 261

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	<u>Total Mercury</u>
Site Composite 010120-11/23/25/31	<0.2 U
~~Method Blank~~	~~<0.2~~ MW
TCLP Limit	*0.2*

MW
11-8-10

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: November 12, 2010

TO: Bryan Vasser, Project Manager, E & E, Seatde, Washington MW

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington

SUBJ: Inorganic Data Quality Assurance Review, Bremerton Gasworks ER Site, Bremerton, Washington

REF: TDD: 10-10-0003 PAN: 002233.0607.01RZ

The data quality assurance review of 31 sediment samples collected from the Bremerton Gasworks ER site in Bremerton, Washington has been completed. The analysis of soil samples for sheen was performed by Friedman and Bruya, Inc., Seattle, Washington.

The samples were numbered:

GL01E02	GL01E01	GL01W01	GL02E01	GL02E02
GL03E03	GL02W01	GL02W02	GL03E01	GL03E02
GL03W01	GL03W02	GL04E01	GL04E02	GL04E03
GL04E04	GL04W01	GL04W02	GL04W03	GL05E01
GL05E02	GL05E03	GL05W01	GL05W02	GL05W03
GL06E01	GL06E02	GL06E03	GL06W01	GL06W02
GL06W03				

<u>Data Qualifications:</u>

The samples were maintained at < 6°C. No QC requirements are specified for sheen analysis.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/02/10
Date Received: 10/11/10
Project: 10JS-10/11/10-0001, F&BI 010120
Date Extracted: NA
Date Analyzed: 10/19/10

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR SHEEN

Sample ID Laboratory ID	Sheen Present (Y/N)
GL01E02 010120-01	N
GL01E01 010120-02	N
GL01W01 010120-03	N
GL02E01 010120-04	N
GL02E02 010120-05	N
GL03E03 010120-06	N
GL02W01 010120-07	N
GL02W02 010120-08	N
GL03E01 010120-09	N
GL03E02 010120-10	N
GL03W01 010120-11	N
GL03W02 010120-12	N

Mu 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/02/10
Date Received: 10/11/10
Project: 10JS-10/11/10-0001, F&BI 010120
Date Extracted: NA
Date Analyzed: 10/19/10

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR SHEEN

Sample ID Laboratory ID	Sheen Present (Y/N)
GL04E01 010120-13	N
GL04E02 010120-14	N
GL04E03 010120-15	N
GL04E04 010120-16	N
GL04W01 010120-17	N
GL04W02 010120-18	N
GL04W03 010120-19	N
GL05E01 010120-20	N
GL05E02 010120-21	N
GL05E03 010120-22	N
GL05W01 010120-23	N
GL05W02 010120-24	N

JMW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/02/10
Date Received: 10/11/10
Project: 10JS-10/11/10-0001, F&BI 010120
Date Extracted: NA
Date Analyzed: 10/19/10

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR SHEEN

Sample ID Laboratory ID	Sheen Present (Y/N)
GL05W03 010120-25	N
GL06E01 010120-26	N
GL06E02 010120-27	N
GL06E03 010120-28	N
GL06W01 010120-29	N
GL06W02 010120-30	N
GL06W03 010120-31	N

MW 11-8-10

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: November 12, 2010

TO: Bryan Vasser, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: Organic Data Quality Assurance Review, Bremerton Gasworks ER Site, Bremerton, Washington

REF: TDD: 10-10-0003 PAN: 002233.0607.01RZ

The data quality assurance review of 32 sediment samples collected from the Bremerton Gasworks ER site in Bremerton, Washington, has been completed. Semivolatile Organic Compound (SVOC; EPA Method 8270) and SVOC TCLP (EPA Methods 1311/.8270) analyses were performed by Friedman and Bruya, Inc., Seattle, Washington.

The samples were numbered:

GL01E02	GL01E01	GL01W01	GL02E01	GL02E02
GL03E03	GL02W01	GL02W02	GL03E01	GL03E02
GL03W01	GL03W02	GL04E01	GL04E02	GL04E03
GL04E04	GL04W01	GL04W02	GL04W03	GL05E01
GL05E02	GL05E03	GL05W01	GL05W02	GL05W03
GL06E01	GL06E02	GL06E03	GL06W01	GL06W02
GL06W03	Site Composite			

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of < 6°C. The samples were collected on October 9 or 10, 2010, were extracted by October 22, 2010, and were analyzed by October 22, 2010, therefore meeting holding time criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. Initial Calibration: Satisfactory.

All average Relative Response Factors (RRFs) were greater than the QC limit of 0.050. All Relative Standard Deviations (RSDs) were less than the QC limit of 30% except benzoic acid, 2,4-dimethylphenol, 4,6-dinitro-2-methylphenol, and benzo(b)fluoranthene. Associated positive results were qualified as estimated quantities with an unknown bias (JK).

4. Continuing Calibration: Acceptable.

Ali RRFs were greater than the QC limit of 0.050. All % differences were less than the QC limit of 25 % except several outliers with high recoveries. No actions were taken based on these outliers as they were not detected in associated samples.

5. Blanks: Satisfactory.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except diethyl phthalate (1.5 ug/L) in the TCLP method blank; associated sample results less than 10 times the positive blank result were qualified as not detected (U).

6. System Monitoring Compounds (SMCs): Acceptable.

All SMC recoveries were within QC limits except in some method blanks (some SMCs had high recoveries; no action was taken as there were no detections in the method blanks except diethyl phthalate in the TCLP method blank) and when diluted out due to high native sample concentrations (no actions were taken based on these outliers).

7. Blank Spike (BS)/BS Duplicate Analysis: Satisfactory.

All spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within the QC limits except high recoveries of acenaphthene in the October 14 analysis; associated positive sample results were qualified as estimated quantities with a high bias (JH).

8. Duplicate Analysis: Acceptable.

Spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits except a few outliers that were not detected in the associated samples; no action was taken based on these outliers.

9. Internal Standards: Satisfactory.

All intemal standards (IS) were within $\pm$ 30 seconds of the continuing calibration IS retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts except acenaphthene and phenanthrene in sample GL06W01 with high area counts. Positive sample results associated with high area count outliers were qualified as estimated quantities with a low bias (JL).

10. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

12. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Samphng Plan and/or Sampling and Quahty Assurance Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Vahdation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Defmitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.

K - The associated result has a likely unknown bias.

L - The associated result has a hkely low bias.

R - The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Site Composite	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/22/10	Lab ID:	010120-11/23/25/31
Date Analyzed:	10/22/10	Data File:	102216.D
Matrix:	TCLP Extract	Instrument:	GCMS3
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	77	30	118
Phenol-d6	46	30	118
Nitrobenzene-d5	85	10	180
2-Fluorobiphenyl	86	40	130
2,4,6-Tribromophenol	83	16	116
Terphenyl-d14	136	30	144

Compounds:	Concentration ug/L (ppb)
Phenol	<10 U
Bis(2-chloroethyl) ether	<1
2-Chlorophenol	<10
1,3-Dichlorobenzene	<1
1,4-Dichlorobenzene	<1
1,2-Dichlorobenzene	<1
Benzyl alcohol	<1
Bis(2-chloroisopropyl) ether	<1
2-Methylphenol	<10
Hexachloroethane	<1
N-Nitroso-di-n-propylamine	<1
3-Methylphenol + 4-Methylphenol	<10
Nitrobenzene	<1
Isophorone	<1
2-Nitrophenol	<10
2,4-Dimethylphenol	<10
Benzoic acid	<100
Bis(2-chloroethoxy)methane	<1
2,4-Dichlorophenol	<10
1,2,4-Trichlorobenzene	<1
Naphthalene	<1
Hexachlorobutadiene	<1
4-Chloroaniline	<3
4-Chloro-3-methylphenol	<10
2-Methylnaphthalene	<1
Hexachlorocyclopentadiene	<3
2,4,6-Trichlorophenol	<10
2,4,5-Trichlorophenol	<10
2-Chloronaphthalene	<1
2-Nitroaniline	<1
Dimethyl phthalate	<1
Acenaphthylene	1.2
2,6-Dinitrotoluene	<1

Compounds:	Concentration ug/L (ppb)
3-Nitroaniline	<3 U
Acenaphthene	3.1
2,4-Dinitrophenol	<30 U
Dibenzofuran	<1
2,4-Dinitrotoluene	<1
4-Nitrophenol	<10
Diethyl phthalate	1.5 ~~fb, lc~~ MW U
Fluorene	<1 U
4-Chlorophenyl phenyl ether	<1
N-Nitrosodiphenylamine	<1
4-Nitroaniline	<10
4,6-Dinitro-2-methylphenol	<30
4-Bromophenyl phenyl ether	<1
Hexachlorobenzene	<1
Pentachlorophenol	<10
Phenanthrene	1.6
Anthracene	<1 U
Carbazole	<1
Di-n-butyl phthalate	<1
Fluoranthene	2.6
Pyrene	3.3
Benzyl butyl phthalate	<1 U
Benz(a)anthracene	<1
Chrysene	<1
Bis(2-ethylhexyl) phthalate	<10
Di-n-octyl phthalate	<1
Benzo(a)pyrene	<1
Benzo(b)fluoranthene	<1
Benzo(k)fluoranthene	<1
Indeno(1,2,3-cd)pyrene	<1
Dibenz(a,h)anthracene	<1
Benzo(g,h,i)perylene	<1

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL01E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-01 1/10
Date Analyzed:	10/25/10	Data File:	102506.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	83	30	118
Phenol-d6	74	30	118
Nitrobenzene-d5	77	10	180
2-Fluorobiphenyl	60	40	130
2,4,6-Tribromophenol	78	16	116
Terphenyl-d14	82	30	144

Compounds:	Concentration mg/kg (ppm)	
Phenol	<3	U
Bis(2-chloroethyl) ether	<0.3	
2-Chlorophenol	<3	
1,3-Dichlorobenzene	<0.3	
1,4-Dichlorobenzene	<0.3	
1,2-Dichlorobenzene	<0.3	
Benzyl alcohol	<0.3	
Bis(2-chloroisopropyl) ether	<0.3	
2-Methylphenol	<3	
Hexachloroethane	<0.3	
N-Nitroso-di-n-propylamine	<0.3	
3-Methylphenol + 4-Methylphenol	<3	
Nitrobenzene	<0.3	
Isophorone	<0.3	
2-Nitrophenol	<3	
2,4-Dimethylphenol	<3	
Benzoic acid	<30	
Bis(2-chloroethoxy)methane	<0.3	
2,4-Dichlorophenol	<3	
1,2,4-Trichlorobenzene	<0.3	
Naphthalene	<0.3	
Hexachlorobutadiene	<1.5	
4-Chloroaniline	<30	
4-Chloro-3-methylphenol	<3	
2-Methylnaphthalene	<0.3	
Hexachlorocyclopentadiene	<0.9	
2,4,6-Trichlorophenol	<3	
2,4,5-Trichlorophenol	<3	
2-Chloronaphthalene	<0.3	
2-Nitroaniline	<1.5	
Dimethyl phthalate	<0.3	
Acenaphthylene	<0.3	
2,6-Dinitrotoluene	<0.3	

Compounds:	Concentration mg/kg (ppm)	
3-Nitroaniline	<45	U
Acenaphthene	<0.3	
2,4-Dinitrophenol	<9	
Dibenzofuran	<0.3	
2,4-Dinitrotoluene	<1.5	
4-Nitrophenol	<3	
Diethyl phthalate	<0.3	
Fluorene	<0.3	
4-Chlorophenyl phenyl ether	<0.3	
N-Nitrosodiphenylamine	<0.3	
4-Nitroaniline	<45	
4,6-Dinitro-2-methylphenol	<9	
4-Bromophenyl phenyl ether	<0.3	
Hexachlorobenzene	<0.3	
Pentachlorophenol	<3	
Phenanthrene	<0.3	
Anthracene	<0.3	
Carbazole	<0.3	
Di-n-butyl phthalate	<0.3	
Fluoranthene	0.57	
Pyrene	0.83	
Benzyl butyl phthalate	<0.3	U
Benz(a)anthracene	0.35	
Chrysene	0.32	
Bis(2-ethylhexyl) phthalate	<3	U
Di-n-octyl phthalate	<0.3	U
Benzo(a)pyrene	<0.3	U
Benzo(b)fluoranthene	0.32	JK
Benzo(k)fluoranthene	<0.3	U
Indeno(1,2,3-cd)pyrene	<0.3	
Dibenz(a,h)anthracene	<0.3	
Benzo(g,h,i)perylene	<0.3	

MW 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL0IE0I	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-02 1/100
Date Analyzed:	10/14/10	Data File:	101410.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55	30	118
Phenol-d6	61	30	118
Nitrobenzene-d5	63	10	180
2-Fluorobiphenyl	73	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	80	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	<3
Anthracene	<3
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	5.9
Pyrene	9.7
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	<3
Chrysene	<3
Bis(2-ethylhexyl) phthalate	<30
Di-n-octyl phthalate	<3
Benzo(a)pyrene	3.1
Benzo(b)fluoranthene	5.0 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	<3
Dibenz(a,h)anthracene	<3
Benzo(g,h,i)perylene	<3

mw 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL01W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-03 1/100
Date Analyzed:	10/14/10	Data File:	101414.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	72	30	118
Phenol-d6	71	30	118
Nitrobenzene-d5	78	10	180
2-Fluorobiphenyl	67	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	79	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U	3-Nitroaniline	<450 U
Bis(2-chloroethyl) ether	<3	Acenaphthene	<3
2-Chlorophenol	<30	2,4-Dinitrophenol	<90
1,3-Dichlorobenzene	<3	Dibenzofuran	<3
1,4-Dichlorobenzene	<3	2,4-Dinitrotoluene	<15
1,2-Dichlorobenzene	<3	4-Nitrophenol	<30
Benzyl alcohol	<3	Diethyl phthalate	<3
Bis(2-chloroisopropyl) ether	<3	Fluorene	<3
2-Methylphenol	<30	4-Chlorophenyl phenyl ether	<3
Hexachloroethane	<3	N-Nitrosodiphenylamine	<3
N-Nitroso-di-n-propylamine	<3	4-Nitroaniline	<450
3-Methylphenol + 4-Methylphenol	<30	4,6-Dinitro-2-methylphenol	<90
Nitrobenzene	<3	4-Bromophenyl phenyl ether	<3
Isophorone	<3	Hexachlorobenzene	<3
2-Nitrophenol	<30	Pentachlorophenol	<30
2,4-Dimethylphenol	<30	Phenanthrene	<3
Benzoic acid	<300	Anthracene	<3
Bis(2-chloroethoxy)methane	<3	Carbazole	<3
2,4-Dichlorophenol	<30	Di-n-butyl phthalate	<3
1,2,4-Trichlorobenzene	<3	Fluoranthene	5.0
Naphthalene	<3	Pyrene	9.8
Hexachlorobutadiene	<15	Benzyl butyl phthalate	<3 U
4-Chloroaniline	<300	Benz(a)anthracene	4.6
4-Chloro-3-methylphenol	<30	Chrysene	3.1
2-Methylnaphthalene	<3	Bis(2-ethylhexyl) phthalate	<30 U
Hexachlorocyclopentadiene	<9	Di-n-octyl phthalate	<3 U
2,4,6-Trichlorophenol	<30	Benzo(a)pyrene	3.9
2,4,5-Trichlorophenol	<30	Benzo(b)fluoranthene	5.5 JK
2-Chloronaphthalene	<3	Benzo(k)fluoranthene	<3 U
2-Nitroaniline	<15	Indeno(1,2,3-cd)pyrene	3.3
Dimethyl phthalate	<3	Dibenz(a,h)anthrarene	<3 U
Acenaphthylene	<3	Benzo(g,h,i)perylene	<3 U
2,6-Dinitrotoluene	<3		

MW 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL02E01	Ghent:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-04 1/100
Date Analyzed:	10/14/10	Data File:	101411.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	57	30	118
Phenol-d6	66	30	118
Nitrobenzene-d5	65	10	180
2-Fluorobiphenyl	73	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	80	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	14
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	12
Pyrene	21
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	5.9
Chrysene	5.7
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	5.0
Benzo(b)fluoranthene	8.2 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	3.7 J
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	3.7

MW 11810

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL02E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-05 1/50
Date Analyzed:	10/25/10	Data File:	102508.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	90	30	118
Phenol-d6	90	30	118
Nitrobenzene-d5	96	10	180
2-Fluorobiphenyl	68	40	130
2,4,6-Tribromophenol	60	16	116
Terphenyl-d14	98	30	144

Compounds:	Concentration mg/kg (ppm)	
Phenol	<15	U
Bis(2-chloroethyl) ether	<1.5	
2-Chlorophenol	<15	
1,3-Dichlorobenzene	<1.5	
1,4-Dichlorobenzene	<1.5	
1,2-Dichlorobenzene	<1.5	
Benzyl alcohol	<1.5	
Bis(2-chloroisopropyl) ether	<1.5	
2-Methylphenol	<15	
Hexachloroethane	<1.5	
N-Nitroso-di-n-propylamine	<1.5	
3-Methylphenol + 4-Methylphenol	<15	
Nitrobenzene	<1.5	
Isophorone	<1.5	
2-Nitrophenol	<15	
2,4-Dimethylphenol	<15	
Benzoic acid	<150	
Bis(2-chloroethoxy)methane	<1.5	
2,4-Dichlorophenol	<15	
1,2,4-Trichlorobenzene	<1.5	
Naphthalene	<1.5	
Hexachlorobutadiene	<7.5	
4-Chloroaniline	<150	
4-Chloro-3-methylphenol	<15	
2-Methylnaphthalene	<1.5	
Hexachlorocyclopentadiene	<4.5	
2,4,6-Trichlorophenol	<15	
2,4,5-Trichlorophenol	<15	
2-Chloronaphthalene	<1.5	
2-Nitroaniline	<7.5	
Dimethyl phthalate	<1.5	
Acenaphthylene	<1.5	
2,6-Dinitrotoluene	<1.5	

Compounds:	Concentration mg/kg (ppm)	
3-Nitroaniline	<230	U
Acenaphthene	<1.5	
2,4-Dinitrophenol	<45	
Dibenzofuran	<1.5	
2,4-Dinitrotoluene	<7.5	
4-Nitrophenol	<15	
Diethyl phthalate	<1.5	
Fluorene	<1.5	
4-Chlorophenyl phenyl ether	<1.5	
N-Nitrosodiphenylamine	<1.5	
4-Nitroaniline	<230	
4,6-Dinitro-2-methylphenol	<45	
4-Bromophenyl phenyl ether	<1.5	
Hexachlorobenzene	<1.5	
Pentachlorophenol	<15	
Phenanthrene	<1.5	
Anthracene	<1.5	
Carbazole	<1.5	
Di-n-butyl phthalate	<1.5	
Fluoranthene	1.9	
Pyrene	2.4	
Benzyl butyl phthalate	<1.5	U
Benz(a)anthracene	<1.5	
Chrysene	<1.5	
Bis(2-ethylhexyl) phthalate	<15	
Di-n-octyl phthalate	<1.5	
Benzo(a)pyrene	<1.5	
Benzo(b)fluoranthene	<1.5	
Benzo(k)fluoranthene	<1.5	
Indeno(1,2,3-cd)pyrene	<1.5	
Dibenz(a,h)anthracene	<1.5	
Benzo(g,h,i)perylene	<1.5	

MW 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL03E03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-06 1/10
Date Analyzed:	10/25/10	Data File:	102507.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	96	30	118
Phenol-d6	88	30	118
Nitrobenzene-d5	91	10	180
2-Fluorobiphenyl	68	40	130
2,4,6-Tribromophenol	94	16	116
Terphenyl-d14	98	30	144

Compounds:	Concentration mg/kg (ppm)	
Phenol	<3	U
Bis(2-chloroethyl) ether	<0.3	
2-Chlorophenol	<3	
1,3-Dichlorobenzene	<0.3	
1,4-Dichlorobenzene	<0.3	
1,2-Dichlorobenzene	<0.3	
Benzyl alcohol	<0.3	
Bis(2-chloroisopropyl) ether	<0.3	
2-Methylphenol	<3	
Hexachloroethane	<0.3	
N-Nitroso-di-n-propylamine	<0.3	
3-Methylphenol + 4-Methylphenol	<3	
Nitrobenzene	<0.3	
Isophorone	<0.3	
2-Nitrophenol	<3	
2,4-Dimethylphenol	<3	
Benzoic acid	<30	
Bis(2-chloroethoxy)methane	<0.3	
2,4-Dichlorophenol	<3	
1,2,4-Trichlorobenzene	<0.3	
Naphthalene	<0.3	
Hexachlorobutadiene	<1.5	
4-Chloroaniline	<30	
4-Chloro-3-methylphenol	<3	
2-Methylnaphthalene	<0.3	
Hexachlorocyclopentadiene	<0.9	
2,4,6-Trichlorophenol	<3	
2,4,5-Trichlorophenol	<3	
2-Chloronaphthalene	<0.3	
2-Nitroaniline	<1.5	
Dimethyl phthalate	<0.3	
Acenaphthylene	<0.3	
2,6-Dinitrotoluene	<0.3	

Compounds:	Concentration mg/kg (ppm)	
3-Nitroaniline	<45	U
Acenaphthene	<0.3	
2,4-Dinitrophenol	<9	
Dibenzofuran	<0.3	
2,4-Dinitrotoluene	<1.5	
4-Nitrophenol	<3	
Diethyl phthalate	<0.3	
Fluorene	<0.3	
4-Chlorophenyl phenyl ether	<0.3	
N-Nitrosodiphenylamine	<0.3	
4-Nitroaniline	<45	
4,6-Dinitro-2-methylphenol	<9	
4-Bromophenyl phenyl ether	<0.3	
Hexachlorobenzene	<0.3	
Pentachlorophenol	<3	
Phenanthrene	<0.3	
Anthracene	<0.3	
Carbazole	<0.3	
Di-n-butyl phthalate	<0.3	
Fluoranthene	0.34	
Pyrene	0.53	
Benzyl butyl phthalate	<0.3	U
Benz(a)anthracene	<0.3	
Chrysene	<0.3	
Bis(2-ethylhexyl) phthalate	<3	
Di-n-octyl phthalate	<0.3	
Benzo(a)pyrene	<0.3	
Benzo(b)fluoranthene	0.31	JK
Benzo(k)fluoranthene	<0.3	
Indeno(1,2,3-cd)pyrene	<0.3	
Dibenz(a,h)anthracene	<0.3	
Benzo(g,h,i)perylene	<0.3	

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL02W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-07 1/100
Date Analyzed:	10/14/10	Data File:	101415.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	61	30	118
Phenol-d6	60	30	118
Nitrobenzene-d5	64	10	180
2-Fluorobiphenyl	71	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	69	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	5.5
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	13
Pyrene	23
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	7.6
Chrysene	7.5
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	7.0
Benzo(b)fluoranthene	11 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	5.5
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	5.5

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL02W02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-08 1/100
Date Analyzed:	10/16/10	Data File:	101528.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	43	30	118
Phenol-d6	61	30	118
Nitrobenzene-d5	72	10	180
2-Fluorobiphenyl	32 ds	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	72	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U	3-Nitroanihne	<450 U
Bis(2-chloroethyl) ether	<3	Acenaphthene	<3
2-Chlorophenol	<30	2,4-Dinitrophenol	<90
1,3-Dichlorobenzene	<3	Dibenzofuran	<3
1,4-Dichlorobenzene	<3	2,4-Dinitrotoluene	<15
1,2-Dichlorobenzene	<3	4-Nitrophenol	<30
Benzyl alcohol	<3	Diethyl phthalate	<3
Bis(2-chloroisopropyl) ether	<3	Fluorene	<3
2-Methylphenol	<30	4-Chlorophenyl phenyl ether	<3
Hexachloroethane	<3	N-Nitrosodiphenylamine	<3
N-Nitroso-di-n-propylamine	<3	4-Nitroanihne	<450
3-Methylphenol + 4-Methylphenol	<30	4,6-Dinitro-2-methylphenol	<90
Nitrobenzene	<3	4-Bromophenyl phenyl ether	<3
Isophorone	<3	Hexachlorobenzene	<3
2-Nitrophenol	<30	Pentachlorophenol	<30
2,4-Dimethylphenol	<30	Phenanthrene	3.2
Benzoic acid	<300	Anthracene	<3 U
Bis(2-chloroethoxy)methane	<3	Carbazole	<3
2,4-Dichlorophenol	<30	Di-n-butyl phthalate	<3
1,2,4-Trichlorobenzene	<3	Fluoranthene	6.3
Naphthalene	<3	Pyrene	11
Hexachlorobutadiene	<15	Benzyl butyl phthalate	<3 U
4-Chloroaniline	<300	Benz(a)anthracene	3.9
4-Chloro-3-methylphenol	<30	Chrysene	4.0
2-Methylnaphthalene	<3	Bis(2-ethylhexyl) phthalate	<30 U
Hexachlorocyclopentadiene	<9	Di-n-octyl phthalate	<3
2,4,6-Trichlorophenol	<30	Benzo(a)pyrene	<3
2,4,5-Trichlorophenol	<30	Benzo(b)fluoranthene	4.7 JK
2-Chloronaphthalene	<3	Benzo(k)fluoranthene	<3 U
2-Nitroaniline	<15	Indeno(1,2,3-cd)pyrene	<3
Dimethyl phthadate	<3	Dibenz(a,h)anthracene	<3
Acenaphthylene	<3	Benzo(g,h,i)perylene	<3
2,6-Dinitrotoluene	<3		

MW
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Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL03E01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-09 1/100
Date Analyzed:	10/14/10	Data File:	101413.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55	30	118
Phenol-d6	63	30	118
Nitrobenzene-d5	59	10	180
2-Fluorobiphenyl	63	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	72	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	3.0
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	7.0
Pyrene	13
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	4.4
Chrysene	4.9
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	3.9
Benzo(b)fluoranthene	6.5 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	3.0
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	<3

Mw 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL03E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-10 1/500
Date Analyzed:	10/25/10	Data File:	102504.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	0 ds	30	118
Phenol-d6	45	30	118
Nitrobenzene-d5	65	10	180
2-Fluorobiphenyl	45	40	130
2,4,6-Tribromophenol	0	16	116
Terphenyl-d14	55	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<150 U
Bis(2-chloroethyl) ether	<15
2-Chlorophenol	<150
1,3-Dichlorobenzene	<15
1,4-Dichlorobenzene	<15
1,2-Dichlorobenzene	<15
Benzyl alcohol	<15
Bis(2-chloroisopropyl) ether	<15
2-Methylphenol	<150
Hexachloroethane	<15
N-Nitroso-di-n-propylamine	<15
3-Methylphenol + 4-Methylphenol	<150
Nitrobenzene	<15
Isophorone	<15
2-Nitrophenol	<150
2,4-Dimethylphenol	<150
Benzoic acid	<1,500
Bis(2-chloroethoxy)methane	<15
2,4-Dichlorophenol	<150
1,2,4-Trichlorobenzene	<15
Naphthalene	<15
Hexachlorobutadiene	<75
4-Chloroaniline	<1,500
4-Chloro-3-methylphenol	<150
2-Methylnaphthalene	<15
Hexachlorocyclopentadiene	<45
2,4,6-Trichlorophenol	<150
2,4,5-Trichlorophenol	<150
2-Chloronaphthalene	<15
2-Nitroaniline	<75
Dimethyl phthalate	<15
Acenaphthylene	<15
2,6-Dinitrotoluene	<15

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<2,300 U
Acenaphthene	<15
2,4-Dinitrophenol	<450
Dibenzofuran	<15
2,4-Dinitrotoluene	<75
4-Nitrophenol	<150
Diethyl phthalate	<15
Fluorene	<15
4-Chlorophenyl phenyl ether	<15
N-Nitrosodiphenylamine	<15
4-Nitroaniline	<2,300
4,6-Dinitro-2-methylphenol	<450
4-Bromophenyl phenyl ether	<15
Hexachlorobenzene	<15
Pentachlorophenol	<150
Phenanthrene	<15
Anthracene	<15
Carbazole	<15
Di-n-butyl phthalate	<15
Fluoranthene	<15
Pyrene	<15
Benzyl butyl phthalate	<15
Benz(a)anthracene	<15
Chrysene	<15
Bis(2-ethylhexyl) phthalate	<150
Di-n-octyl phthalate	<15
Benzo(a)pyrene	<15
Benzo(b)fluoranthene	<15
Benzo(k)fluoranthene	<15
Indeno(1,2,3-cd)pyrene	<15
Dibenz(a,h)anthracene	<15
Benzo(g,h,i)perylene	<15

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL03W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-11 1/500
Date Analyzed:	10/16/10	Data File:	101529.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	50	30	118
Phenol-d6	40	30	118
Nitrobenzene-d5	55	10	180
2-Fluorobiphenyl	40	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	65	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<150 U
Bis(2-chloroethyl) ether	<15
2-Chlorophenol	<150
1,3-Dichlorobenzene	<15
1,4-Dichlorobenzene	<15
1,2-Dichlorobenzene	<15
Benzyl alcohol	<15
Bis(2-chloroisopropyl) ether	<15
2-Methylphenol	<150
Hexachloroethane	<15
N-Nitroso-di-n-propylamine	<15
3-Methylphenol + 4-Methylphenol	<150
Nitrobenzene	<15
Isophorone	<15
2-Nitrophenol	<150
2,4-Dimethylphenol	<150
Benzoic acid	<1,500
Bis(2-chloroethoxy)methane	<15
2,4-Dichlorophenol	<150
1,2,4-Trichlorobenzene	<15
Naphthalene	<15
Hexachlorobutadiene	<75
4-Chloroaniline	<1,500
4-Chloro-3-methylphenol	<150
2-Methylnaphthalene	<15
Hexachlorocyclopentadiene	<45
2,4,6-Trichlorophenol	<150
2,4,5-Trichlorophenol	<150
2-Chloronaphthalene	<15
2-Nitroanihne	<75
Dimethyl phthalate	<15
Acenaphthylene	<15
2,6-Dinitrotoluene	<15

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<2,300 U
Acenaphthene	<15
2,4-Dinitrophenol	<450
Dibenzofuran	<15
2,4-Dinitrotoluene	<75
4-Nitrophenol	<150
Diethyl phthalate	<15
Fluorene	<15
4-Chlorophenyl phenyl ether	<15
N-Nitrosodiphenylamine	<15
4-Nitroaniline	<2,300
4,6-Dinitro-2-methylphenol	<450
4-Bromophenyl phenyl ether	<15
Hexachlorobenzene	<15
Pentachlorophenol	<150
Phenanthrene	18
Anthracene	<15 U
Carbazole	<15
Di-n-butyl phthalate	<15
Fluoranthene	42
Pyrene	72
Benzyl butyl phthalate	<15 U
Benz(a)anthracene	24
Chrysene	24
Bis(2-ethylhexyl) phthalate	<150 U
Di-n-octyl phthalate	<15 U
Benzo(a)pyrene	17
Benzo(b)fluoranthene	32 JK
Benzo(k)fluoranthene	<15 U
Indeno(1,2,3-cd)pyrene	16
Dibenz(a,h)anthracene	<15 U
Benzo(g,h,i)perylene	<15 U

JMW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compoumds By EPA Method 8270D

Client Sample ID:	GL03W02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-12 1/100
Date Analyzed:	10/14/10	Data File:	101416.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	30	118
Phenol-d6	68	30	118
Nitrobenzene-d5	71	10	180
2-Fluorobiphenyl	64	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	71	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroanihne	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	3.3
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	8.3
Pyrene	15
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	6.6
Chrysene	4.4
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	5.4
Benzo(b)fluoranthene	8.5 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	4.3
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	4.0

MW 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL04E01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-13 1/100
Date Analyzed:	10/14/10	Data File:	101417.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	30	118
Phenol-d6	72	30	118
Nitrobenzene-d5	72	10	180
2-Fluorobiphenyl	71	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	73	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamlne	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	5.3
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	14
Pyrene	25
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	9.4
Chrysene	6.9
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	7.6
Benzo(b)fluoranthene	12 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	6.2
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	6.1

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL04E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-14 1/100
Date Analyzed:	10/14/10	Data File:	101418.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	60	30	118
Phenol-d6	68	30	118
Nitrobenzene-d5	69	10	180
2-Fluorobiphenyl	56	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	64	30	144

Compounds:	Concentration mg/kg (ppm)		Compounds:	Concentration mg/kg (ppm)	
Phenol	<30	U	3-Nitroaniline	<450	U
Bis(2-chloroethyl) ether	<3		Acenaphthene	<3	
2-Chlorophenol	<30		2,4-Dinitrophenol	<90	
1,3-Dichlorobenzene	<3		Dibenzofuran	<3	
1,4-Dichlorobenzene	<3		2,4-Dinitrotoluene	<15	
1,2-Dichlorobenzene	<3		4-Nitrophenol	<30	
Benzyl alcohol	<3		Diethyl phthalate	<3	
Bis(2-chloroisopropyl) ether	<3		Fluorene	<3	
2-Methylphenol	<30		4-Chlorophenyl phenyl ether	<3	
Hexachloroethane	<3		N-Nitrosodiphenylamine	<3	
N-Nitroso-di-n-propylamine	<3		4-Nitroaniline	<450	
3-Methylphenol + 4-Methylphenol	<30		4,6-Dinitro-2-methylphenol	<90	
Nitrobenzene	<3		4-Bromophenyl phenyl ether	<3	
Isophorone	<3		Hexachlorobenzene	<3	
2-Nitrophenol	<30		Pentachlorophenol	<30	
2,4-Dimethylphenol	<30		Phenanthrene	<3	
Benzoic acid	<300		Anthracene	<3	
Bis(2-chloroethoxy)methane	<3		Carbazole	<3	
2,4-Dichlorophenol	<30		Di-n-butyl phthalate	<3	
1,2,4-Trichlorobenzene	<3		Fluoranthene	10	
Naphthalene	<3		Pyrene	19	
Hexachlorobutadiene	<15		Benzyl butyl phthalate	<3	U
4-Chloroaniline	<300		Benz(a)anthracene	8.1	
4-Chloro-3-methylphenol	<30		Chrysene	5.8	
2-Methylnaphthalene	<3		Bis(2-ethylhexyl) phthalate	<30	U
Hexachlorocyclopentadiene	<9		Di-n-octyl phthalate	<3	U
2,4,6-Trichlorophenol	<30		Benzo(a)pyrene	6.6	
2,4,5-Trichlorophenol	<30		Benzo(b)fluoranthene	10	JK
2-Chloronaphthalene	<3		Benzo(k)fluoranthene	<3	U
2-Nitroaniline	<15		Indeno(1,2,3-cd)pyrene	5.6	
Dimethyl phthalate	<3		Dibenz(a,h)anthracene	<3	U
Acenaphthylene	<3		Benzo(g,h,i)perylene	5.3	
2,6-Dinitrotoluene	<3				

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL04E03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-15 1/100
Date Analyzed:	10/15/10	Data File:	101506.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	54	30	118
Phenol-d6	55	30	118
Nitrobenzene-d5	73	10	180
2-Fluorobiphenyl	65	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	75	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U	3-Nitroaniline	<450 U
Bis(2-chloroethyl) ether	<3	Acenaphthene	<3
2-Chlorophenol	<30	2,4-Dinitrophenol	<90
1,3-Dichlorobenzene	<3	Dibenzofuran	<3
1,4-Dichlorobenzene	<3	2,4-Dinitrotoluene	<15
1,2-Dichlorobenzene	<3	4-Nitrophenol	<30
Benzyl alcohol	<3	Diethyl phthalate	<3
Bis(2-chloroisopropyl) ether	<3	Fluorene	<3
2-Methylphenol	<30	4-Chlorophenyl phenyl ether	<3
Hexachloroethane	<3	N-Nitrosodiphenylamine	<3
N-Nitroso-di-n-propylamine	<3	4-Nitroaniline	<450
3-Methylphenol + 4-Methylphenol	<30	4,6-Dinitro-2-methylphenol	<90
Nitrobenzene	<3	4-Bromophenyl phenyl ether	<3
Isophorone	<3	Hexachlorobenzene	<3
2-Nitrophenol	<30	Pentachlorophenol	<30
2,4-Dimethylphenol	<30	Phenanthrene	<3
Benzoic acid	<300	Anthracene	<3
Bis(2-chloroethoxy)methane	<3	Carbazole	<3
2,4-Dichlorophenol	<30	Di-n-butyl phthalate	<3
1,2,4-Trichlorobenzene	<3	Fluoranthene	<3
Naphthalene	<3	Pyrene	4.5
Hexachlorobutadiene	<15	Benzyl butyl phthalate	<3 U
4-Chloroaniline	<300	Benz(a)anthracene	<3
4-Chloro-3-methylphenol	<30	Chrysene	<3
2-Methylnaphthalene	<3	Bis(2-ethylhexyl) phthalate	<30
Hexachlorocyclopentadiene	<9	Di-n-octyl phthalate	<3
2,4,6-Trichlorophenol	<30	Benzo(a)pyrene	<3
2,4,5-Trichlorophenol	<30	Benzo(b)fluoranthene	<3
2-Chloronaphthalene	<3	Benzo(k)fluoranthene	<3
2-Nitroaniline	<15	Indeno(1,2,3-cd)pyrene	<3
Dimethyl phthalate	<3	Dibenz(a,h)anthracene	<3
Acenaphthylene	<3	Benzo(g,h,i)perylene	<3
2,6-Dinitrotoluene	<3		

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL04E04	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-16 1/50
Date Analyzed:	10/26/10	Data File:	102610.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	75	30	118
Phenol-d6	67	30	118
Nitrobenzene-d5	83	10	180
2-Fluorobiphenyl	47	40	130
2,4,6-Tribromophenol	37	16	116
Terphenyl-d14	70	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<15 U	3-Nitroaniilne	<230 U
Bis(2-chloroethyl) ether	<1.5	Acenaphthene	<1.5
2-Chlorophenol	<15	2,4-Dinitrophenol	<45
1,3-Dichlorobenzene	<1.5	Dibenzofuran	<1.5
1,4-Dichlorobenzene	<1.5	2,4-Dinitrotoluene	<7.5
1,2-Dichlorobenzene	<1.5	4-Nitrophenol	<15
Benzyl alcohol	<1.5	Diethyl phthalate	<1.5
Bis(2-chloroisopropyl) ether	<1.5	Fluorene	<1.5
2-Methylphenol	<15	4-Chlorophenyl phenyl ether	<1.5
Hexachloroethane	<1.5	N-Nitrosodiphenylamine	<1.5
N-Nitroso-di-n-propylamine	<1.5	4-Nitroaniline	<230
3-Methylphenol + 4-Methylphenol	<15	4,6-Dinitro-2-methylphenol	<45
Nitrobenzene	<1.5	4-Bromophenyl phenyl ether	<1.5
Isophorone	<1.5	Hexachlorobenzene	<1.5
2-Nitrophenol	<15	Pentachlorophenol	<15
2,4-Dimethylphenol	<15	Phenanthrene	<1.5
Benzoic acid	<150	Anthracene	<1.5
Bis(2-chloroethoxy)methane	<1.5	Carbazole	<1.5
2,4-Dichlorophenol	<15	Di-n-butyl phthalate	<1.5
1,2,4-Trichlorobenzene	<1.5	Fluoranthene	1.5
Naphthalene	<1.5	Pyrene	2.2
Hexachlorobutadiene	<7.5	Benzyl butyl phthalate	<1.5 U
4-Chloroaniline	<150	Benz(a)anthracene	<1.5
4-Chloro-3-methylphenol	<15	Chrysene	<1.5
2-Methylnaphthalene	<1.5	Bis(2-ethylhexyl) phthalate	<15
Hexachlorocyclopentadiene	<4.5	Di-n-octyl phthalate	<1.5
2,4,6-Trichlorophenol	<15	Benzo(a)pyrene	<1.5
2,4,5-Trichlorophenol	<15	Benzo(b)fluoranthene	<1.5
2-Chloronaphthalene	<1.5	Benzo(k)fluoranthene	<1.5
2-Nitroaniline	<7.5	Indeno(1,2,3-cd)pyrene	<1.5
Dimethyl phthalate	<1.5	Dibenz(a,h)anthracene	<1.5
Acenaphthylene	<1.5	Benzo(g,h,i)perylene	<1.5
2,6-Dinitrotoluene	<1.5		

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL04W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-17 1/100
Date Analyzed:	10/15/10	Data File:	101514.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	71	30	118
Phenol-d6	71	30	118
Nitrobenzene-d5	68	10	180
2-Fluorobiphenyl	68	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	83	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniilne	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroanihne	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	3.3 ~~JK~~ MW
Fluorene	<3 U
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	4.7 J
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	15
Pyrene	26
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	9.6
Chrysene	9.8
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	9.6
Benzo(b)fluoranthene	13 JK
Benzo(k)fluoranthene	3.5
Indeno(1,2,3-cd)pyrene	7.2 J
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	7.1

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL04W02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-18 1/500
Date Analyzed:	10/15/10	Data File:	101520.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55	30	118
Phenol-d6	45	30	118
Nitrobenzene-d5	80	10	180
2-Fluorobiphenyl	70	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	70	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<150 U
Bis(2-chloroethyl) ether	<15
2-Chlorophenol	<150
1,3-Dichlorobenzene	<15
1,4-Dichlorobenzene	<15
1,2-Dichlorobenzene	<15
Benzyl alcohol	<15
Bis(2-chloroisopropyl) ether	<15
2-Methylphenol	<150
Hexachloroethane	<15
N-Nitroso-di-n-propylamine	<15
3-Methylphenol + 4-Methylphenol	<150
Nitrobenzene	<15
Isophorone	<15
2-Nitrophenol	<150
2,4-Dimethylphenol	<150
Benzoic acid	<1,500
Bis(2-chloroethoxy)methane	<15
2,4-Dichlorophenol	<150
1,2,4-Trichlorobenzene	<15
Naphthalene	<15
Hexachlorobutadiene	<75
4-Chloroaniline	<1,500
4-Chloro-3-methylphenol	<150
2-Methylnaphthalene	<15
Hexachlorocyclopentadiene	<45
2,4,6-Trichlorophenol	<150
2,4,5-Trichlorophenol	<150
2-Chloronaphthalene	<15
2-Nitroaniline	<75
Dimethyl phthalate	<15
Acenaphthylene	<15
2,6-Dinitrotoluene	<15

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<2,300 U
Acenaphthene	<15
2,4-Dinitrophenol	<450
Dibenzofuran	<15
2,4-Dinitrotoluene	<75
4-Nitrophenol	<150
Diethyl phthalate	<15
Fluorene	<15
4-Chlorophenyl phenyl ether	<15
N-Nitrosodiphenylamine	<15
4-Nitroaniline	<2,300
4,6-Dinitro-2-methylphenol	<450
4-Bromophenyl phenyl ether	<15
Hexachlorobenzene	<15
Pentachlorophenol	<150
Phenanthrene	<15
Anthracene	<15
Carbazole	<15
Di-n-butyl phthalate	<15
Fluoranthene	26
Pyrene	40
Benzyl butyl phthalate	<15 U
Benz(a)anthracene	16
Chrysene	16
Bis(2-ethylhexyl) phthalate	<150 U
Di-n-octyl phthalate	<15
Benzo(a)pyrene	<15
Benzo(b)fluoranthene	21 JK
Benzo(k)fluoranthene	<15 U
Indeno(1,2,3-cd)pyrene	<15
Dibenz(a,h)anthracene	<15
Benzo(g,h,i)perylene	<15

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL04W03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-19 1/100
Date Analyzed:	10/15/10	Data File:	101516.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	78	30	118
Phenol-d6	72	30	118
Nitrobenzene-d5	72	10	180
2-Fluorobiphenyl	73	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	81	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	6.0
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	18
Pyrene	30
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	9.7
Chrysene	10
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	8.1
Benzo(b)fluoranthene	14 JK
Benzo(k)fluoranthene	3.1
Indeno(1,2,3-cd)pyrene	6.8
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	6.5

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL05E01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-20 1/100
Date Analyzed:	10/16/10	Data File:	101521.D
Matrix:	Soli	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	60	30	118
Phenol-d6	70	30	118
Nitrobenzene-d5	66	10	180
2-Fluorobiphenyl	59	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	80	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Flexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroanihne	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	<3
Anthracene	<3
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	4.7
Pyrene	7.7
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	3.3
Chrysene	3.3
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3
Benzo(a)pyrene	<3
Benzo(b)fluoranthene	4.2 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	<3
Dibenz(a,h)anthracene	<3
Benzo(g,h,i)perylene	<3

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL05E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-21 1/100
Date Analyzed:	10/15/10	Data File:	101517.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	70	30	118
Phenol-d6	67	30	118
Nitrobenzene-d5	76	10	180
2-Fluorobiphenyl	62	40	130
2,4,6-Tribromophenol	55	16	116
Terphenyl-d14	78	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	6.9
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	19
Pyrene	34
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	11
Chrysene	11
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	9.6
Benzo(b)fluoranthene	13 JK
Benzo(k)fluoranthene	3.1
Indeno(1,2,3-cd)pyrene	<3 U
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	5.7

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL05E03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-22 1/100
Date Analyzed:	10/15/10	Data File:	101515.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	29 ds ds	30	118
Phenol-d6	38	30	118
Nitrobenzene-d5	78	10	180
2-Fluorobiphenyl	69	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	84	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U	3-Nitroaniline	<450 U
Bis(2-chloroethyl) ether	<3	Acenaphthene	<3
2-Chlorophenol	<30	2,4-Dinitrophenol	<90
1,3-Dichlorobenzene	<3	Dibenzofuran	<3
1,4-Dichlorobenzene	<3	2,4-Dinitrotoluene	<15
1,2-Dichlorobenzene	<3	4-Nitrophenol	<30
Benzyl alcohol	<3	Diethyl phthalate	<3
Bis(2-chloroisopropyl) ether	<3	Fluorene	<3
2-Methylphenol	<30	4-Chlorophenyl phenyl ether	<3
Hexachloroethane	<3	N-Nitrosodiphenylamine	<3
N-Nitroso-di-n-propylamine	<3	4-Nitroaniline	<450
3-Methylphenol + 4-Methylphenol	<30	4,6-Dinitro-2-methylphenol	<90
Nitrobenzene	<3	4-Bromophenyl phenyl ether	<3
Isophorone	<3	Hexachlorobenzene	<3
2-Nitrophenol	<30	Pentachlorophenol	<30
2,4-Dimethylphenol	<30	Phenanthrene	<3
Benzoic acid	<300	Anthracene	<3
Bis(2-chloroethoxy)methane	<3	Carbazole	<3
2,4-Dichlorophenol	<30	Di-n-butyl phthalate	<3
1,2,4-Trichlorobenzene	<3	Fluoranthene	6.0
Naphthalene	<3	Pyrene	9.0
Hexachlorobutadiene	<15	Benzyl butyl phthalate	<3 U
4-Chloroaniline	<300	Benz(a)anthracene	4.4
4-Chloro-3-methylphenol	<30	Chrysene	5.6
2-Methylnaphthalene	<3	Bis(2-ethylhexyl) phthalate	<30 U
Hexachlorocyclopentadiene	<9	Di-n-octyl phthalate	<3 U
2,4,6-Trichlorophenol	<30	Benzo(a)pyrene	5.0
2,4,5-Trichlorophenol	<30	Benzo(b)fluoranthene	8.3 JK
2-Chloronaphthalene	<3	Benzo(k)fluoranthene	<3 U
2-Nitroaniline	<15	Indeno(1,2,3-cd)pyrene	5.4
Dimethyl phthalate	<3	Dibenz(a,h)anthracene	<3 U
Acenaphthylene	<3	Benzo(g,h,i)perylene	5.4
2,6-Dinitrotoluene	<3		

MW 11/8/10

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL05W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-23 1/100
Date Analyzed:	10/15/10	Data File:	101518.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	59	30	118
Phenol-d6	66	30	118
Nitrobenzene-d5	79	10	180
2-Fluorobiphenyl	69	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	90	30	144

Compounds:	Concentration mg/kg (ppm)	
Phenol	<30	U
Bis(2-chloroethyl) ether	<3	
2-Chlorophenol	<30	
1,3-Dichlorobenzene	<3	
1,4-Dichlorobenzene	<3	
1,2-Dichlorobenzene	<3	
Benzyl alcohol	<3	
Bis(2-chloroisopropyl) ether	<3	
2-Methylphenol	<30	
Hexachloroethane	<3	
N-Nitroso-di-n-propylamine	<3	
3-Methylphenol + 4-Methylphenol	<30	
Nitrobenzene	<3	
Isophorone	<3	
2-Nitrophenol	<30	
2,4-Dimethylphenol	<30	
Benzoic acid	<300	
Bis(2-chloroethoxy)methane	<3	
2,4-Dichlorophenol	<30	
1,2,4-Trichlorobenzene	<3	
Naphthalene	4.3	
Hexachlorobutadiene	<15	U
4-Chloroaniline	<300	
4-Chloro-3-methylphenol	<30	
2-Methylnaphthalene	<3	
Hexachlorocyclopentadiene	<9	
2,4,6-Trichlorophenol	<30	
2,4,5-Trichlorophenol	<30	
2-Chloronaphthalene	<3	
2-Nitroaniline	<15	
Dimethyl phthalate	<3	
Acenaphthylene	<3	
2,6-Dinitrotoluene	<3	

Compounds:	Concentration mg/kg (ppm)	
3-Nitroaniline	<450	U
Acenaphthene	<3	
2,4-Dinitrophenol	<90	
Dibenzofuran	<3	
2,4-Dinitrotoluene	<15	
4-Nitrophenol	<30	
Diethyl phthalate	<3	
Fluorene	<3	
4-Chlorophenyl phenyl ether	<3	
N-Nitrosodiphenylamine	<3	
4-Nitroaniline	<450	
4,6-Dinitro-2-methylphenol	<90	
4-Bromophenyl phenyl ether	<3	
Hexachlorobenzene	<3	
Pentachlorophenol	<30	
Phenanthrene	17	
Anthracene	4.5	
Carbazole	<3	U
Di-n-butyl phthalate	<3	U
Fluoranthene	29	
Pyrene	50	
Benzyl butyl phthalate	<3	U
Benz(a)anthracene	16	
Chrysene	16	
Bis(2-ethylhexyl) phthalate	<30	U
Di-n-octyl phthalate	<3	U
Benzo(a)pyrene	14	
Benzo(b)fluoranthene	21	JK
Benzo(k)fluoranthene	5.7	
Indeno(1,2,3-cd)pyrene	11	
Dibenz(a,h)anthracene	<3	U
Benzo(g,h,i)perylene	11	

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL05W02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-24 1/100
Date Analyzed:	10/16/10	Data File:	101522.D
Matrix:	Soli	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	56	30	118
Phenol-d6	58	30	118
Nitrobenzene-d5	74	10	180
2-Fluorobiphenyl	68	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	81	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U	3-Nitroaniline	<450 U
Bis(2-chloroethyl) ether	<3	Acenaphthene	<3
2-Chlorophenol	<30	2,4-Dinitrophenol	<90
1,3-Dichlorobenzene	<3	Dibenzofuran	<3
1,4-Dichlorobenzene	<3	2,4-Dinitrotoluene	<15
1,2-Dichlorobenzene	<3	4-Nitrophenol	<30
Benzyl alcohol	<3	Diethyl phthalate	<3
Bis(2-chloroisopropyl) ether	<3	Fluorene	<3
2-Methylphenol	<30	4-Chlorophenyl phenyl ether	<3
Hexachloroethane	<3	N-Nitrosodiphenylamine	<3
N-Nitroso-di-n-propylamine	<3	4-Nitroaniline	<450
3-Methylphenol + 4-Methylphenol	<30	4,6-Dinitro-2-methylphenol	<90
Nitrobenzene	<3	4-Bromophenyl phenyl ether	<3
Isophorone	<3	Hexachlorobenzene	<3
2-Nitrophenol	<30	Pentachlorophenol	<30
2,4-Dimethylphenol	<30	Phenanthrene	4.2
Benzoic acid	<300	Anthracene	<3 U
Bis(2-chloroethoxy)methane	<3	Carbazole	<3
2,4-Dichlorophenol	<30	Di-n-butyl phthalate	<3
1,2,4-Trichlorobenzene	<3	Fluoranthene	9.8
Naphthalene	<3	Pyrene	16
Hexachlorobutadiene	<15	Benzyl butyl phthalate	<3 U
4-Chloroaniline	<300	Benz(a)anthracene	6.7
4-Chloro-3-methylphenol	<30	Chrysene	6.8
2-Methylnaphthalene	<3	Bis(2-ethylhexyl) phthalate	<30 U
Hexachlorocyclopentadiene	<9	Di-n-octyl phthalate	<3 U
2,4,6-Trichlorophenol	<30	Benzo(a)pyrene	6.0
2,4,5-Trichlorophenol	<30	Benzo(b)fluoranthene	9.9 JK
2-Chloronaphthalene	<3	Benzo(k)fluoranthene	<3 U
2-Nitroaniline	<15	Indeno(1,2,3-cd)pyrene	5.3
Dimethyl phthalate	<3	Dibenz(a,h)anthracene	<3 U
Acenaphthylene	<3	Benzo(g,h,i)perylene	5.1
2,6-Dinitrotoluene	<3		

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL05W03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-25 1/500
Date Analyzed:	10/16/10	Data File:	101523.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	0 ds	30	118
Phenol-d6	35	30	118
Nitrobenzene-d5	75	10	180
2-Fluorobiphenyl	0 ds ds	40	130
2,4,6-Tribromophenol	0 ds ds	16	116
Terphenyl-d14	80	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<150 U
Bis(2-chloroethyl) ether	<15
2-Chlorophenol	<150
1,3-Dichlorobenzene	<15
1,4-Dichlorobenzene	<15
1,2-Dichlorobenzene	<15
Benzyl alcohol	<15
Bis(2-chloroisopropyl) ether	<15
2-Methylphenol	<150
Hexachloroethane	<15
N-Nitroso-di-n-propylamine	<15
3-Methylphenol + 4-Methylphenol	<150
Nitrobenzene	<15
Isophorone	<15
2-Nitrophenol	<150
2,4-Dimethylphenol	<150
Benzoic acid	<1,500
Bis(2-chloroethoxy)methane	<15
2,4-Dichlorophenol	<150
1,2,4-Trichlorobenzene	<15
Naphthalene	<15
Hexachlorobutadiene	<75
4-Chloroaniline	<1,500
4-Chloro-3-methylphenol	<150
2-Methylnaphthalene	<15
Hexachlorocyclopentadiene	<45
2,4,6-Trichlorophenol	<150
2,4,5-Trichlorophenol	<150
2-Chloronaphthalene	<15
2-Nitroaniline	<75
Dimethyl phthalate	<15
Acenaphthylene	<15
2,6-Dinitrotoluene	<15

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<2,300 U
Acenaphthene	<15
2,4-Dinitrophenol	<450
Dibenzofuran	<15
2,4-Dinitrotoluene	<75
4-Nitrophenol	<150
Diethyl phthalate	<15
Fluorene	<15
4-Chlorophenyl phenyl ether	<15
N-Nitrosodiphenylamine	<15
4-Nitroaniline	<2,300
4,6-Dinitro-2-methylphenol	<450
4-Bromophenyl phenyl ether	<15
Hexachlorobenzene	<15
Pentachlorophenol	<150
Phenanthrene	<15
Anthracene	<15
Carbazole	<15
Di-n-butyl phthalate	<15
Fluoranthene	35
Pyrene	51
Benzyl butyl phthalate	<15 U
Benz(a)anthracene	19
Chrysene	20
Bis(2-ethylhexyl) phthalate	<150 U
Di-n-octyl phthalate	<15 U
Benzo(a)pyrene	17
Benzo(b)fluoranthene	25 JK
Benzo(k)fluoranthene	<15 U
Indeno(1,2,3-cd)pyrene	<15
Dibenz(a,h)anthracene	<15
Behzo(g,h,i)perylene	<15

me 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL06E01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-26 1/100
Date Analyzed:	10/26/10	Data Flie:	102609.D
Matrix:	Soli	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	59	30	118
Phenol-d6	58	30	118
Nitrobenzene-d5	59	10	180
2-Fluorobiphenyl	38 ds	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	60	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U	3-Nitroaniline	<450 U
Bis(2-chloroethyl) ether	<3	Acenaphthene	<3
2-Chlorophenol	<30	2,4-Dinitrophenol	<90
1,3-Dichlorobenzene	<3	Dibenzofuran	<3
1,4-Dichlorobenzene	<3	2,4-Dinitrotoluene	<15
1,2-Dichlorobenzene	<3	4-Nitrophenol	<30
Benzyl alcohol	<3	Diethyl phthalate	<3
Bis(2-chloroisopropyl) ether	<3	Fluorene	<3
2-Methylphenol	<30	4-Chlorophenyl phenyl ether	<3
Hexachloroethane	<3	N-Nitrosodiphenylamine	<3
N-Nitroso-di-n-propylamine	<3	4-Nitroaniline	<450
3-Methylphenol + 4-Methylphenol	<30	4,6-Dinitro-2-methylphenol	<90
Nitrobenzene	<3	4-Bromophenyl phenyl ether	<3
Isophorone	<3	Hexachlorobenzene	<3
2-Nitrophenol	<30	Pentachlorophenol	<30
2,4-Dimethylphenol	<30	Phenanthrene	<3
Benzoic acid	<300	Anthracene	<3
Bis(2-chloroethoxy)methane	<3	Carbazole	<3
2,4-Dichlorophenol	<30	Di-n-butyl phthalate	<3
1,2,4-Trichlorobenzene	<3	Fluoranthene	7.6
Naphthalene	<3	Pyrene	11
Hexachlorobutadiene	<15	Benzyl butyl phthalate	<3 U
4-Chloroaniline	<300	Benz(a)anthracene	4.3
4-Chloro-3-methylphenol	<30	Chrysene	4.2
2-Methylnaphthalene	<3	Bis(2-ethylhexyl) phthalate	<30 U
Hexachlorocyclopentadiene	<9	Di-n-octyl phthalate	<3 U
2,4,6-Trichlorophenol	<30	Benzo(a)pyrene	3.5
2,4,5-Trichlorophenol	<30	Benzo(b)fluoranthene	4.6 JK
2-Chloronaphthalene	<3	Benzo(k)fluoranthene	<3 U
2-Nitroaniline	<15	Indeno(1,2,3-cd)pyrene	<3
Dimethyl phthalate	<3	Dibenz(a,h)anthracene	<3
Acenaphthylene	<3	Benzo(g,h,i)perylene	<3
2,6-Dinitrotoluene	<3		

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL06E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-27 1/100
Date Analyzed:	10/15/10	Data File:	101519.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	30	118
Phenol-d6	66	30	118
Nitrobenzene-d5	76	10	180
2-Fluorobiphenyl	71	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	81	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-cbloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	7.6 J
Anthracene	<3 U
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	12
Pyrene	20
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	7.6
Chrysene	7.8 J
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	7.1 J
Benzo(b)fluoranthene	11 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	5.5 J
Dibenz(a,h)anthracene	<3 U
Benzo(g,h,i)perylene	5.3

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL06E03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-28 1/100
Date Analyzed:	10/15/10	Data File:	101508.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	48	30	118
Phenol-d6	47	30	118
Nitrobenzene-d5	72	10	180
2-Fluorobiphenyl	67	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	79	30	144

Compounds:	Concentration mg/kg (ppm)	
Phenol	<30	U
Bis(2-chloroethyl) ether	<3	
2-Chlorophenol	<30	
1,3-Dichlorobenzene	<3	
1,4-Dichlorobenzene	<3	
1,2-Dichlorobenzene	<3	
Benzyl alcohol	<3	
Bis(2-chloroisopropyl) ether	<3	
2-Methylphenol	<30	
Hexachloroethane	<3	
N-Nitroso-di-n-propylamine	<3	
3-Methylphenol + 4-Methylphenol	<30	
Nitrobenzene	<3	
Isophorone	<3	
2-Nitrophenol	<30	
2,4-Dimethylphenol	<30	
Benzoic acid	<300	
Bis(2-chloroethoxy)methane	<3	
2,4-Dichlorophenol	<30	
1,2,4-Trichlorobenzene	<3	
Naphthalene	<3	
Hexachlorobutadiene	<15	
4-Chloroaniline	<300	
4-Chloro-3-methylphenol	<30	
2-Methylnaphthalene	<3	
Hexachlorocyclopentadiene	<9	
2,4,6-Trichlorophenol	<30	
2,4,5-Trichlorophenol	<30	
2-Chloronaphthalene	<3	
2-Nitroaniline	<15	
Dimethyl phthalate	<3	
Acenaphthylene	<3	
2,6-Dinitrotoluene	<3	
3-Nitroaniline	<450	U
Acenaphthene	<3	
2,4-Dinitrophenol	<90	
Dibenzofuran	<3	
2,4-Dinitrotoluene	<15	
4-Nitrophenol	<30	
Diethyl phthalate	<3	
Fluorene	<3	
4-Chlorophenyl phenyl ether	<3	
N-Nitrosodiphenylamine	<3	
4-Nitroaniline	<450	
4,6-Dinitro-2-methylphenol	<90	
4-Bromophenyl phenyl ether	<3	
Hexachlorobenzene	<3	
Pentachlorophenol	<30	
Phenanthrene	<3	
Anthracene	<3	
Carbazole	<3	
Di-n-butyl phthalate	<3	
Fluoranthene	3.6	
Pyrene	6.1	J
Benzyl butyl phthalate	<3	U
Benz(a)anthracene	<3	U
Chrysene	3.6	
Bis(2-ethylhexyl) phthalate	<30	U
Di-n-octyl phthalate	<3	U
Benzo(a)pyrene	3.1	
Benzo(b)fluoranthene	4.6	JK
Benzo(k)fluoranthene	<3	U
Indeno(1,2,3-cd)pyrene	<3	
Dibenz(a,h)anthracene	<3	
Benzo(g,h,i)perylene	<3	

Jlhw 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL06W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-29 1/100
Date Analyzed:	10/15/10	Data File:	101509.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	50	30	118
Phenol-d6	55	30	118
Nitrobenzene-d5	77	10	180
2-Fluorobiphenyl	75	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	80	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<30 U
Bis(2-chloroethyl) ether	<3
2-Chlorophenol	<30
1,3-Dichlorobenzene	<3
1,4-Dichlorobenzene	<3
1,2-Dichlorobenzene	<3
Benzyl alcohol	<3
Bis(2-chloroisopropyl) ether	<3
2-Methylphenol	<30
Hexachloroethane	<3
N-Nitroso-di-n-propylamine	<3
3-Methylphenol + 4-Methylphenol	<30
Nitrobenzene	<3
Isophorone	<3
2-Nitrophenol	<30
2,4-Dimethylphenol	<30
Benzoic acid	<300
Bis(2-chloroethoxy)methane	<3
2,4-Dichlorophenol	<30
1,2,4-Trichlorobenzene	<3
Naphthalene	<3
Hexachlorobutadiene	<15
4-Chloroaniline	<300
4-Chloro-3-methylphenol	<30
2-Methylnaphthalene	<3
Hexachlorocyclopentadiene	<9
2,4,6-Trichlorophenol	<30
2,4,5-Trichlorophenol	<30
2-Chloronaphthalene	<3
2-Nitroaniline	<15
Dimethyl phthalate	<3
Acenaphthylene	<3
2,6-Dinitrotoluene	<3

Compounds:	Concentration mg/kg (ppm)
3-Nitroaniline	<450 U
Acenaphthene	<3
2,4-Dinitrophenol	<90
Dibenzofuran	<3
2,4-Dinitrotoluene	<15
4-Nitrophenol	<30
Diethyl phthalate	<3
Fluorene	<3
4-Chlorophenyl phenyl ether	<3
N-Nitrosodiphenylamine	<3
4-Nitroaniline	<450
4,6-Dinitro-2-methylphenol	<90
4-Bromophenyl phenyl ether	<3
Hexachlorobenzene	<3
Pentachlorophenol	<30
Phenanthrene	<3
Anthracene	<3
Carbazole	<3
Di-n-butyl phthalate	<3
Fluoranthene	4.5 JL
Pyrene	7.7
Benzyl butyl phthalate	<3 U
Benz(a)anthracene	3.5
Chrysene	3.3
Bis(2-ethylhexyl) phthalate	<30 U
Di-n-octyl phthalate	<3 U
Benzo(a)pyrene	3.2
Benzo(b)fluoranthene	5.1 JK
Benzo(k)fluoranthene	<3 U
Indeno(1,2,3-cd)pyrene	<3
Dibenz(a,h)anthracene	<3
Benzo(g,h,i)perylene	<3

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL06W02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-30 1/500
Date Analyzed:	10/16/10	Data File:	101525.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	0 ds	30	118
Phenol-d6	0 ds	30	118
Nitrobenzene-d5	60	10	180
2-Fluorobiphenyl	40	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	65	30	144

Compounds:	Concentration mg/kg (ppm)
Phenol	<150 U
Bis(2-chloroethyl) ether	<15
2-Chlorophenol	<150
1,3-Dichlorobenzene	<15
1,4-Dichlorobenzene	<15
1,2-Dichlorobenzene	<15
Benzyl alcohol	<15
Bis(2-chloroisopropyl) ether	<15
2-Methylphenol	<150
Hexachloroethane	<15
N-Nitroso-di-n-propylamine	<15
3-Methylphenol + 4-Methylphenol	<150
Nitrobenzene	<15
Isophorone	<15
2-Nitrophenol	<150
2,4-Dimethylphenol	<150
Benzoic acid	<1,500
Bis(2-chloroethoxy)methane	<15
2,4-Dichlorophenol	<150
1,2,4-Trichlorobenzene	<15
Naphthalene	<15
Hexachlorobutadiene	<75
4-Chloroaniline	<1,500
4-Chloro-3-methylphenol	<150
2-Methylnaphthalene	<15
Hexachlorocyclopentadiene	<45
2,4,6-Trichlorophenol	<150
2,4,5-Trichlorophenol	<150
2-Chloronaphthalene	<15
2-Nitroaniline	<75
Dimethyl phthadate	<15
Acenaphthylene	<15
2,6-Dinitrotoluene	<15
3-Nitroaniline	<2,300 U
Acenaphthene	<15
2,4-Dinitrophenol	<450
Dibenzofuran	<15
2,4-Dinitrotoluene	<75
4-Nitrophenol	<150
Diethyl phthalate	<15
Fluorene	<15
4-Chlorophenyl phenyl ether	<15
N-Nitrosodiphenylamine	<15
4-Nitroaniline	<2,300
4,6-Dinitro-2-methylphenol	<450
4-Bromophenyl phenyl ether	<15
Hexachlorobenzene	<15
Pentachlorophenol	<150
Phenanthrene	<15
Anthracene	<15
Carbazole	<15
Di-n-butyl phthalate	<15
Fluoranthene	16
Pyrene	28
Benzyl butyl phthalate	<15 U
Benz(a)anthracene	<15
Chrysene	<15
Bis(2-ethylhexyl) phthalate	<150
Di-n-octyl phthalate	<15
Benzo(a)pyrene	<15
Benzo(b)fluoranthene	15
Benzo(k)fluoranthene	<15 U
Indeno(1,2,3-cd)pyrene	<15
Dibenz(a,h)anthracene	<15
Benzo(g,h,i)perylene	<15

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	GL06W03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-31 1/500
Date Analyzed:	10/16/10	Data File:	101526.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	0 ds	30	118
Phenol-d6	0 ds	30	118
Nitrobenzene-d5	65	10	180
2-Fluorobiphenyl	45	40	130
2,4,6-Tribromophenol	0 ds	16	116
Terphenyl-d14	90	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<150 U	3-Nitroaniline	<2,300 U
Bis(2-chloroethyl) ether	<15	Acenaphthene	<15
2-Chlorophenol	<150	2,4-Dinitrophenol	<450
1,3-Dichlorobenzene	<15	Dibenzofuran	<15
1,4-Dichlorobenzene	<15	2,4-Dinitrotoluene	<75
1,2-Dichlorobenzene	<15	4-Nitrophenol	<150
Benzyl alcohol	<15	Diethyl phthalate	<15
Bis(2-chloroisopropyl) ether	<15	Fluorene	<15
2-Methylphenol	<150	4-Chlorophenyl phenyl ether	<15
Hexachloroethane	<15	N-Nitrosodiphenylamine	<15
N-Nitroso-di-n-propylamine	<15	4-Nitroaniilne	<2,300
3-Methylphenol + 4-Methylphenol	<150	4,6-Dinitro-2-methylphenol	<450
Nitrobenzene	<15	4-Bromophenyl phenyl ether	<15
Isophorone	<15	Hexachlorobenzene	<15
2-Nitrophenol	<150	Pentachlorophenol	<150
2,4-Dimethylphenol	<150	Phenanthrene	36
Benzoic acid	<1,500	Anthracene	<15 U
Bis(2-chloroethoxy)methane	<15	Carbazole	<15
2,4-Dichlorophenol	<150	Di-n-butyl phthalate	<15
1,2,4-Trichlorobenzene	<15	Fluoranthene	110
Naphthalene	<15	Pyrene	160
Hexachlorobutadiene	<75	Benzyl butyl phthalate	<15 U
4-Chloroaniline	<1,500	Benz(a)anthracene	69
4-Chloro-3-methylphenol	<150	Chrysene	80
2-Methylnaphthalene	<15	Bis(2-ethylhexyl) phthalate	<150 U
Hexachlorocyclopentadiene	<45	Di-n-octyl phthalate	<15 U
2,4,6-Trichlorophenol	<150	Benzo(a)pyrene	76
2,4,5-Trichlorophenol	<150	Benzo(b)fluoranthene	110 JK
2-Chloronaphthalene	<15	Benzo(k)fluoranthene	32
2-Nitroaniline	<75	Indeno(1,2,3-cd)pyrene	72
Dimethyl phthalate	<15	Dibenz(a,h)anthracene	<15 U
Acenaphthylene	<15	Benzo(g,h,i)perylene	60
2,6-Dinitrotoluene	<15		

MW 11-8-10

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: November 12, 2010

TO: Bryan Vasser, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington *MW*

SUBJ: **Organic** Data Quality Assurance Review, Bremerton **Gasworks ER** Site, Bremerton, **Washington**

REF: TDD: 10-10-0003 PAN: 002233.0607.01RZ

The data quality assurance review of 1 water and 20 sediment samples collected from the Bremerton Gasworks ER site in Bremerton, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Friedman and Bruya, Inc., Seattle, Washington.

The samples were numbered:

GL01E02	GL01E01	GL02E01	GL02E02	GL02W01
GL03E01	GL03E02	GL03W01	GL03W02	GL04E01
GL04E02	GL04E03	GL04W01	GL04W02	GL04W03
GL05E01	GL05E02	GL05W01	GL05W02	GL05W03
TB01WT				

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits of < 6°C. The samples were collected between October 9 and 1L, 2010, and were analyzed by October 14, 2010, therefore meeting QC criteria of less than 14 days between collection and analysis for soil/sediment and preserved water samples.

2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. Initial Calibration: Satisfactory.

All average Relative Response Factors (RRFs) were greater than the QC limit of 0.050 except acetone; associated acetone sample quantitation limits were rejected (R). All water Relative Standard Deviations (RSDs) were less than the QC limits of 30%.

4. Continuing Calibration: Acceptable.

All RRFs were greater than the QC limit of 0.050 except acetone; no additional actions were taken based on these outhers. All % differences were less than the QC limit of 25%.

5. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

6. System Monitoring Compounds (SMCs): Acceptable.

All SMC recoveries were within QC limits.

7. Matrix Spike (MS)/MS Duplicate/Blank Spike (BS)/BS Duplicate Analysis: Acceptable.

Spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

8. Duplicate Analysis: Acceptable.

Laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

9. Internal Standards: Acceptable.

All internal standards were within ± 30 seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

10. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

12. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.

R - The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL01E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-01
Date Analyzed:	10/13/10	Data File:	101317.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	42	152
Toluene-d8	91	36	149
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ UR	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.70	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL0IE0I	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-02
Date Analyzed:	10/13/10	Data File:	101318.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	42	152
Toluene-d8	88	36	149
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL02E01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-04
Date Analyzed:	10/13/10	Data File:	101319.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	42	152
Toluene-d8	86	36	149
4-Bromofluorobenzene	86	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.72 J	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

MW 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL02E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-05
Date Analyzed:	10/13/10	Data File:	101320.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	88	42	152
Toluene-d8	84	36	149
4-Bromofluorobenzene	82	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05 U	m,p-Xylene	<0.1
Methylene chloride	0.73 dc J	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

mw 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL02W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-07
Date Analyzed:	10/13/10	Data File:	101321.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	83	42	152
Toluene-d8	84	36	149
4-Bromofluorobenzene	82	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ MNR	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.78 K MW	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

MW 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Ghent Sample ID:	GL03E01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-09
Date Analyzed:	10/14/10	Data File:	101325.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	81	42	152
Toluene-d8	81	36	149
4-Bromofluorobenzene	81	50	150

Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U
Chloromethane	<0.5
Vinyl chloride	<0.05
Bromomethane	<0.5
Chloroethane	<0.5
Trichlorofluoromethane	<0.5
~~Acetone~~	~~<0.5~~ R
1,1-Dichloroethene	<0.05
Methylene chloride	0.79 J
Methyl t-butyl ether (MTBE)	<0.05 U
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
2,2-Dichloropropane	<0.05
cis-1,2-Dichloroethene	<0.05
Chloroform	<0.05
2-Butanone (MEK)	<0.5
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
1,1-Dichloropropene	<0.05
Carbon tetrachloride	<0.05
Benzene	<0.03
Trichloroethene	<0.03
1,2-Dichloropropane	<0.05
Bromodichloromethane	<0.05
Dibromomethane	<0.05
4-Methyl-2-pentanone	<0.5
cis-1,3-Dichloropropene	<0.05
Toluene	<0.05
trans-1,3-Dichloropropene	<0.05
1,1,2-Trichloroethane	<0.05
2-Hexanone	<0.5

Compounds:	Concentration mg/kg (ppm)
1,3-Dichloropropane	<0.05 U
Tetrachloroethene	<0.025
Dibromochloromethane	<0.05
1,2-Dibromoethane (EDB)	<0.05
Chlorobenzene	<0.05
Ethylbenzene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Styrene	<0.05
Isopropylbenzene	<0.05
Bromoform	<0.05
n-Propylbenzene	<0.05
Bromobenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,1,2,2-Tetrachloroethane	<0.05
1,2,3-Trichloropropane	<0.05
2-Chlorotoluene	<0.05
4-Chlorotoluene	<0.05
tert-Butylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
sec-Butylbenzene	<0.05
p-Isopropyltoluene	<0.05
1,3-Dichlorobenzene	<0.05
1,4-Dichlorobenzene	<0.05
1,2-Dichlorobenzene	<0.05
1,2-Dibromo-3-chloropropane	<0.5
1,2,4-Trichlorobenzene	<0.25
Hexachlorobutadiene	<0.25
Naphthalene	<0.05
1,2,3-Trichlorobenzene	<0.25

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Cilent Sample ID:	GL03E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-10
Date Analyzed:	10/14/10	Data File:	101326.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	81	42	152
Toluene-d8	81	36	149
4-Bromofluorobenzene	82	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.78 ~~lc~~ U	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL03W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-11
Date Analyzed:	10/14/10	Data File:	101327.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	42	152
Toluene-d8	90	36	149
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.91	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL03W02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-12
Date Analyzed:	10/14/10	Data File:	101328.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	83	42	152
Toluene-d8	82	36	149
4-Bromofluorobenzene	82	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ mw R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05 U	m,p-Xylene	<0.1
Methylene chloride	0.77 le J	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

MW
11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL04E01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-13
Date Analyzed:	10/14/10	Data File:	101329.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	86	42	152
Toluene-d8	84	36	149
4-Bromofluorobenzene	83	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.12
~~Acetone~~	~~<0.5~~ MW R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	1.0 ~~k~~ MW	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroetbane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzeno	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	0.036	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03 U	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	0.64
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

MW 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Ghent Sample ID:	GL04E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-14
Date Analyzed:	10/14/10	Data File:	101330.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	42	152
Toluene-d8	86	36	149
4-Bromofluorobenzene	85	50	150

Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U
Chloromethane	<0.5
Vinyl chloride	<0.05
Bromomethane	<0.5
Chloroethane	<0.5
Trichlorofluoromethane	<0.5
~~Acetone~~	~~<0.5~~ MW R
1,1-Dichloroethene	<0.05
Methylene chloride	1.0 ~~K~~ MW
Methyl t-butyl ether (MTBE)	<0.05 U
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
2,2-Dichloropropane	<0.05
cis-1,2-Dichloroethene	<0.05
Chloroform	<0.05
2-Butanone (MEK)	<0.5
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
1,1-Dichloropropene	<0.05
Carbon tetrachloride	<0.05
Benzene	<0.03
Trichloroethene	<0.03
1,2-Dichloropropane	<0.05
Bromodichloromethane	<0.05
Dibromomethane	<0.05
4-Methyl-2-pentanone	<0.5
cis-1,3-Dichloropropene	<0.05
Toluene	<0.05
trans-1,3-Dichloropropene	<0.05
1,1,2-Trichloroethane	<0.05
2-Hexanone	<0.5

Compounds:	Concentration mg/kg (ppm)
1,3-Dichloropropane	<0.05 U
Tetrachloroethene	<0.025
Dibromochloromethane	<0.05
1,2-Dibromoethane (EDB)	<0.05
Chlorobenzene	<0.05
Ethylbenzene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Styrene	<0.05
Isopropylbenzene	<0.05
Bromoform	<0.05
n-Propylbenzene	<0.05
Bromobenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,1,2,2-Tetrachloroethane	<0.05
1,2,3-Trichloropropane	<0.05
2-Chlorotoluene	<0.05
4-Chlorotoluene	<0.05
tert-Butylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
sec-Butylbenzene	<0.05
p-Isopropyltoluene	<0.05
1,3-Dichlorobenzene	<0.05
1,4-Dichlorobenzene	<0.05
1,2-Dichlorobenzene	<0.05
1,2-Dibromo-3-chloropropane	<0.5
1,2,4-Trichlorobenzene	<0.25
Hexachlorobutadiene	<0.25
Naphthalene	<0.05
1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL04E03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-15
Date Analyzed:	10/14/10	Data File:	101331.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	84	42	152
Toluene-d8	84	36	149
4-Bromofluorobenzene	85	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ mw R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.90 J mw	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL04W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-17
Date Analyzed:	10/14/10	Data File:	101332.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	42	152
Toluene-d8	87	36	149
4-Bromofluorobenzene	86	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.89 J	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL04W02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-18
Date Analyzed:	10/14/10	Data File:	101333.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	87	42	152
Toluene-d8	85	36	149
4-Bromofluorobenzene	85	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ MR	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.91	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropano	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL04W03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-19
Date Analyzed:	10/14/10	Data File:	101334.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	86	42	152
Toluene-d8	86	36	149
4-Bromofluorobenzene	85	50	150

Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U
Chloromethane	<0.5
Vinyl chloride	<0.05
Bromomethane	<0.5
Chloroethane	<0.5
Trichlorofluoromethane	<0.5
~~Acetone~~	~~<0.5~~ R
1,1-Dichloroethene	<0.05
Methylene chloride	0.80 J
Methyl t-butyl ether (MTBE)	<0.05 U
trans-1,2-Dichloroethene	<0.05
1,1-Dichloroethane	<0.05
2,2-Dichloropropane	<0.05
cis-1,2-Dichloroethene	<0.05
Chloroform	<0.05
2-Butanone (MEK)	<0.5
1,2-Dichloroethane (EDC)	<0.05
1,1,1-Trichloroethane	<0.05
1,1-Dichloropropene	<0.05
Carbon tetrachloride	<0.05
Benzene	<0.03
Trichloroethene	<0.03
1,2-Dichloropropane	<0.05
Bromodichloromethane	<0.05
Dibromomethane	<0.05
4-Methyl-2-pentanone	<0.5
cis-1,3-Dichloropropene	<0.05
Toluene	<0.05
trans-1,3-Dichloropropene	<0.05
1,1,2-Trichloroethane	<0.05
2-Hexanone	<0.5

Compounds:	Concentration mg/kg (ppm)
1,3-Dichloropropane	<0.05 U
Tetrachloroethene	<0.025
Dibromochloromethane	<0.05
1,2-Dibromoethane (EDB)	<0.05
Chlorobenzene	<0.05
Ethylbenzene	<0.05
1,1,1,2-Tetrachloroethane	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Styrene	<0.05
Isopropylbenzene	<0.05
Bromoform	<0.05
n-Propylbenzene	<0.05
Bromobenzene	<0.05
1,3,5-Trimethylbenzene	<0.05
1,1,2,2-Tetrachloroethane	<0.05
1,2,3-Trichloropropane	<0.05
2-Chlorotoluene	<0.05
4-Chlorotoluene	<0.05
tert-Butylbenzene	<0.05
1,2,4-Trimethylbenzene	<0.05
sec-Butylbenzene	<0.05
p-Isopropyltoluene	<0.05
1,3-Dichlorobenzene	<0.05
1,4-Dichlorobenzene	<0.05
1,2-Dichlorobenzene	<0.05
1,2-Dibromo-3-chloropropane	<0.5
1,2,4-Trichlorobenzene	<0.25
Hexachlorobutadiene	<0.25
Naphthalene	<0.05
1,2,3-Trichlorobenzene	<0.25

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL05E01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-20
Date Analyzed:	10/14/10	Data File:	101335.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	42	152
Toluene-d8	86	36	149
4-Bromofluorobenzene	87	50	150

Compounds:	Concentration mg/kg (ppm)		Compounds:	Concentration mg/kg (ppm)	
Dichlorodifluoromethane	<0.5	U	1,3-Dichloropropane	<0.05	U
Chloromethane	<0.5		Tetrachloroethene	<0.025	
Vinyl chloride	<0.05		Dibromochloromethane	<0.05	
Bromomethane	<0.5		1,2-Dibromoethane (EDB)	<0.05	
Chloroethane	<0.5		Chlorobenzene	<0.05	
Trichlorofluoromethane	<0.5		Ethylbenzene	<0.05	
~~Acetone~~	~~<0.5~~	R	1,1,1,2-Tetrachloroethane	<0.05	
1,1-Dichloroethene	<0.05		m,p-Xylene	<0.1	
Methylene chloride	0.77		o-Xylene	<0.05	
Methyl t-butyl ether (MTBE)	<0.05	U	Styrene	<0.05	
trans-1,2-Dichloroethene	<0.05		Isopropylbenzene	<0.05	
1,1-Dichloroethane	<0.05		Bromoform	<0.05	
2,2-Dichloropropane	<0.05		n-Propylbenzene	<0.05	
cis-1,2-Dichloroethene	<0.05		Bromobenzene	<0.05	
Chloroform	<0.05		1,3,5-Trimethylbenzene	<0.05	
2-Butanone (MEK)	<0.5		1,1,2,2-Tetrachloroethane	<0.05	
1,2-Dichloroethane (EDC)	<0.05		1,2,3-Trichloropropane	<0.05	
1,1,1-Trichloroethane	<0.05		2-Chlorotoluene	<0.05	
1,1-Dichloropropene	<0.05		4-Chlorotoluene	<0.05	
Carbon tetrachloride	<0.05		tert-Butylbenzene	<0.05	
Benzene	<0.03		1,2,4-Trimethylbenzene	<0.05	
Trichloroethene	<0.03		sec-Butylbenzene	<0.05	
1,2-Dichloropropane	<0.05		p-Isopropyltoluene	<0.05	
Bromodichloromethane	<0.05		1,3-Dichlorobenzene	<0.05	
Dibromomethane	<0.05		1,4-Dichlorobenzene	<0.05	
4-Methyl-2-pentanone	<0.5		1,2-Dichlorobenzene	<0.05	
cis-1,3-Dichloropropene	<0.05		1,2-Dibromo-3-chloropropane	<0.5	
Toluene	<0.05		1,2,4-Trichlorobenzene	<0.25	
trans-1,3-Dichloropropene	<0.05		Hexachlorobutadiene	<0.25	
1,1,2-Trichloroethane	<0.05		Naphthalene	<0.05	
2-Hexanone	<0.5		1,2,3-Trichlorobenzene	<0.25	

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL05E02	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-21
Date Analyzed:	10/14/10	Data File:	101336.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	87	42	152
Toluene-d8	87	36	149
4-Bromofluorobenzene	85	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.88 J	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

mw 11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL05W01	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-23
Date Analyzed:	10/14/10	Data File:	101337.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	42	152
Toluene-d8	88	36	149
4-Bromofluorobenzene	88	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 U	1,3-Dichloropropane	<0.05 U
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ MW R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05 U	m,p-Xylene	<0.1
Methylene chloride	0.92 J MW	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05 U	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Metbyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzcne	<0.25

MW 11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Ghent Sample ID:	GL05W02	Cilent:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-24
Date Analyzed:	10/14/10	Data File:	101338.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	89	42	152
Toluene-d8	88	36	149
4-Bromofluorobenzene	86	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
~~Acetone~~	~~<0.5~~ JMW R	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.87	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

JMW
11/8/10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	GL05W03	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/13/10	Lab ID:	010120-25
Date Analyzed:	10/14/10	Data File:	101339.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	42	152
Toluene-d8	87	36	149
4-Bromofluorobenzene	85	50	150

Compounds:	Concentration mg/kg (ppm)		Compounds:	Concentration mg/kg (ppm)	
Dichlorodifluoromethane	<0.5	U	1,3-Dichloropropane	<0.05	U
Chloromethane	<0.5		Tetrachloroethene	<0.025	
Vinyl chloride	<0.05		Dibromochloromethane	<0.05	
Bromomethane	<0.5		1,2-Dibromoethane (EDB)	<0.05	
Chloroethane	<0.5		Chlorobenzene	<0.05	
Trichlorofluoromethane	<0.5		Ethylbenzene	<0.05	
~~Acetone~~	~~<0.5~~	R	1,1,1,2-Tetrachloroethane	<0.05	
1,1-Dichloroethene	<0.05		m,p-Xylene	<0.1	
Methylene chloride	0.89 ~~lc~~		o-Xylene	<0.05	
Methyl t-butyl ether (MTBE)	<0.05	U	Styrene	<0.05	
trans-1,2-Dichloroethene	<0.05		Isopropylbenzene	<0.05	
1,1-Dichloroethane	<0.05		Bromoform	<0.05	
2,2-Dichloropropane	<0.05		n-Propylbenzene	<0.05	
cis-1,2-Dichloroethene	<0.05		Bromobenzene	<0.05	
Chloroform	<0.05		1,3,5-Trimethylbenzene	<0.05	
2-Butanone (MEK)	<0.5		1,1,2,2-Tetrachloroethane	<0.05	
1,2-Dichloroethane (EDC)	<0.05		1,2,3-Trichloropropane	<0.05	
1,1,1-Trichloroethane	<0.05		2-Chlorotoluene	<0.05	
1,1-Dichloropropene	<0.05		4-Chlorotoluene	<0.05	
Carbon tetrachloride	<0.05		tert-Butylbenzene	<0.05	
Benzene	<0.03		1,2,4-Trimethylbenzene	<0.05	
Trichloroethene	<0.03		sec-Butylbenzene	<0.05	
1,2-Dichloropropane	<0.05		p-Isopropyltoluene	<0.05	
Bromodichloromethane	<0.05		1,3-Dichlorobenzene	<0.05	
Dibromomethane	<0.05		1,4-Dichlorobenzene	<0.05	
4-Methyl-2-pentanone	<0.5		1,2-Dichlorobenzene	<0.05	
cis-1,3-Dichloropropene	<0.05		1,2-Dibromo-3-chloropropane	<0.5	
Toluene	<0.05		1,2,4-Trichlorobenzene	<0.25	
trans-1,3-Dichloropropene	<0.05		Hexachlorobutadiene	<0.25	
1,1,2-Trichloroethane	<0.05		Naphthalene	<0.05	
2-Hexanone	<0.5		1,2,3-Trichlorobenzene	<0.25	

11-8-10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	TB01WT	Client:	Ecology and Environment, Inc.
Date Received:	10/11/10	Project:	10JS-10/11/10-0001, F&BI 010120
Date Extracted:	10/12/10	Lab ID:	010120-32
Date Analyzed:	10/12/10	Data File:	101225.D
Matrix:	Water	Instrument:	CCMS4
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	63	127
Toluene-d8	96	60	129
4-Bromofluorobenzene	111	51	145

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
~~Acetone~~	~~<10~~	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

JMW 11-8-10

Appendix D

APPENDIX D
U.S. COAST GUARD AND CASCADE NATURAL GAS CORPORATION COMMUNICATIONS

Administrative Order for a Pollution Incident (from USCG)
Acceptance of Order (from Cascade Natural Gas)
incident Action and Time Critical Removal Action Completion Letter (from USCG)
Response to Completion Letter (from Cascade Natural Gas)

U.S. Department of Homeland Security
United States Coast Guard

Commander
United States Coast Guard
Sector Puget Sound

1519 Alaskan Way South, Bldg 4
Seattle, WA 98134-1192
Staff Symbol: srm
Phone: (206) 217-6002
Fax: (206) 217-6178

16600

OCT 20 2010

ADMINISTRATIVE ORDER FOR A POLLUTION INCIDENT

Cascade Natural Gas Corporation
Ms. Abby Krebsbach
c/o CT Corporation Systems
1801 West Bay Drive NW
Suite 205
Olympia, WA 98502

SITUATION: You have identified yourself as a potential responsible party for an underground cement pipe that is releasing coal tar creosote, hereby identified as Manufactured Gas Plant (MGP) coal tar creosote waste, into the mid tidal zone of Sinclair Inlet, a navigable waterway of the United States. I have determined the underground pipe poses a substantial threat of creating a release of a hazardous substance into the environment.

DIRECTIONS: The Coast Guard is authorized by Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601) to act, consistent with the National Contingency Plan, to take any action necessary to protect the public health or welfare of the environment. In addition, the threat of a release may present an imminent and substantial endangerment to the public health or welfare of the United States, including fish, shellfish, and wildlife, public and private property, shorelines, beaches, habitats, and other living and nonliving natural resources under the jurisdiction or control of the United States. Among those who may be subjected to such endangerment are the waters of the Sinclair Inlet and the residents of Bremerton, Washington. Therefore I direct you to take the following actions:

1. Prevent further contamination of the marine environment by permanently securing the release of the MGP waste.

2. Remove the cement pipe and all visible MGP Waste contamination from the marine environment.

3. Cleanup operations shall begin no later than 48 hours from the date of this order.

4. You will submit a detailed plan to U.S. Coast Guard Sector Puget Sound for the removal of the MGP Waste and associated pipe prior to conducting any operations.

(Continued)

PENALTIES: Failure or refusal to provide all reasonable cooperation and assistance requested by the Federal On Scene Coordinator or failure or refusal to comply with this order will subject you to a civil penalty of up to $37,500 per day of violation.

Should you require further information regarding this matter, please contact Marine Science Technician Danielle Wood at the above address and telephone number.

Sincerely,

for

S. J. FERGUSON
Captain, U.S. Coast Guard
Federal On Scene Coordinator

Print name and sign	Date	Witness	Date

Copy: Washington State Department of Ecology
Commander, Thirteenth Coast Guard District (drm)
United States Environmental Protection Agency
Kitsap County Department of Public Health

CASCADE NATURAL GAS CORPORATION
A Subsidiary of MDU Resources Group, Inc.
In the Community to Serve
8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 99336-7166
TELEPHONE (509) 734-4500 FACSIMILE (509) 737-9803
www.cngc.com

Via Email and US Mail

October 29, 2010

S.J. Ferguson
Captain, U.S. Coast Guard
Federal On-Scene Coordinator
1519 Alaskan Way South, Building 4
Seattle, WA 98134-1192

RE: Administrative Order for Pollution Incident, Bremerton, Washington

Dear Captain Ferguson:

This letter provides Cascade Natural Gas Corporation's ("Cascade") formal response to the Administrative Order for a Pollution Incident ("AO") issued by the U.S. Coast Guard ("USCG") under Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act. The AO is dated October 20, 2010, and was served on Cascade on October 27, 2010.

As directed by the USCG, Cascade will conduct the time critical removal action (the "Removal Action") described in the Anchor QEA Work Plan for the Former Bremerton MGP Site ("Work Plan"), as finally approved by the USCG and the Unified Command. As you know, Cascade commenced work relating to the Removal Action on October 19, 2010, immediately after its first meeting with the Unified Command. Cascade continues work in preparation for the Removal Action. Cascade will conduct the Removal Action according to the Work Plan and the schedule provided in the Work Plan. The current schedule calls for mobilization of equipment to begin next week and for the pipe plugging, pipe removal, sediment removal, and sediment capping activities to commence the week following.

Cascade is undertaking the Removal Action as directed by the USCG and in recognition of the time critical nature of the situation. However, Cascade does not admit liability. Nor does Cascade admit any factual allegations in the AO.

Cascade understands the Removal Action outlined in the Work Plan is necessary and is consistent with the National Contingency Plan. Cascade further understands that the USCG, through the Unified Command, is coordinating with federal, state and local agencies on best management practices and other measures necessary to meet the substantive requirements of applicable or relevant and appropriate requirements, and that such measures will be incorporated into the approved Work Plan. Finally, Cascade understands that its completion of the work described in the Work Plan will stabilize the site and will fully satisfy the requirements of the AO. Any subsequent removal or remedial action at the site will be conducted under the oversight of the U.S. Environmental Protection Agency.

Please do not hesitate to contact me with any questions.

Sincerely,

CASCADE NATURAL GAS CORPORATION

K. Frank Morehouse by ASh

K. Frank Morehouse
Executive Vice President and General Manager

cc: Danielle Wood, USCG
Kathy Parker, EPA
Elizabeth McKenna, EPA
Abbie Krebsbach, Cascade
Kalle Kuether, Cascade
Dan Kuntz, Cascade
Howard Jensen, Tupper Mack Brower Jensen Wells
Andy Salter, Salter Joyce Ziker

U.S. Department of Homeland Security
United States Coast Guard

Commander
United States Coast Guard
Sector Puget Sound

1519 Alaskan Way South, Bldg 4
Seattle, WA 98134-1192
Staff Symbol: S
Phone: (206) 217-6002
Fax: (206) 217-6178

16600
November 16, 2010

Cascade Natural Gas Corporation
Attn: A. Krebsbach
c/o CT Corporation Systems
1801 West Bay Drive NW
Suite 205
Olympia, WA 98502

Dear Sir or Madam:

I have determined that the intent of the Administrative Order issued to you on October 20th, 2010, directing you to take appropriate response actions for the release of Manufactured Gas Plant coal tar creosote waste into the mid tidal zone of Sinclair Inlet, has been met. The Administration Order is hereby rescinded.

Should site conditions change warranting another time critical response to protect the marine habitat or human health and safety, another Administrative Order may be issued, as deemed appropriate by me. Your cooperation and diligence in assembling a professional and timely response to this incident were greatly appreciated. If you have any questions or concerns, please do not hesitate to contact my office.

Sincerely,

S. J. Ferguson

S. J. FERGUSON
Captain, U.S. Coast Guard
Federal On Scene Coordinator

Copy: Washington State Department of Ecology
Commander, Thirteenth Coast Guard District (drm)
United States Environmental Protection Agency
Kitsap County Department of Public Health

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8113 W. GRANDRIDGE BLVD., KENNEWICK, WASHINGTON 98336-7166
TELEPHONE 509-734-4500 FACSIMILE 509-737-9803
www.cngc.com

Via Email and US Mail

November 23, 2010

S.J. Ferguson
Captain, U.S. Coast Guard
Federal On-Scene Coordinator
1519 Alaskan Way South, Building 4
Seattle, WA 98134-1192

RE: Completion of Work under Administrative Order for Pollution Incident, Bremerton, Washington

Dear Captain Ferguson:

Thank you for your letter of November 16, 2010, confirming Cascade Natural Gas Corporation ("Cascade") has satisfied the requirements of the Administrative Order for a Pollution Incident ("AO") issued by the U.S. Coast Guard ("USCG") under Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act. The AO is dated October 20, 2010, and was served on Cascade on October 27, 2010. Cascade responded to the AO by letter dated October 29, 2010.

As directed by the USCG and required under the AO, Cascade performed the time critical removal action (the "Removal Action") described in the Anchor QEA Work Plan for the Former Bremerton MGP Site dated November 4, 2010 ("Work Plan"). The Work Plan was approved by the USCG and the Unified Command on November 5, 2010. Cascade's completion of the physical work described in the Work Plan has stabilized the site, and, as reflected in your letter of November 16, this work fully satisfies the requirements of the AO.[1] Cascade will prepare the closure report and conduct the post-completion inspections described in the Work Plan. As noted in our letter of October 29, Cascade understands the entirety of the Removal Action outlined in the Work Plan is necessary and consistent with the National Contingency Plan.

[1] We assume your statement the AO is "rescinded" means the activities required under the AO have been completed in compliance with the AO, which makes the AO of no continuing force or effect.

Cascade greatly appreciates your leadership in reviewing and approving the Work Plan and coordinating agency consultations for the Removal Action. The USCG deserves credit for successful completion of the Removal Action.

Sincerely,

CASCADE NATURAL GAS CORPORATION

Frank Morehouse
Executive Vice President and General Manager

cc: Danielle Wood, USCG
Kathy Parker, EPA
Elizabeth McKenna, EPA
Brad Martin, Ecology
Grant Holdcroft, Kitsap County Public Health
Abbie Krebsbach, Cascade
Kalle Kuether Godel, Cascade
Dan Kuntz, Cascade
Howard Jensen, Tupper Mack Brower Jensen Wells
Andy Salter, Salter Joyce Ziker

Appendix E

APPENDIX E
ACCESS AGREEMENTS

Washington State Department of Natural Resources
Natacha Sesko
McConkey Family Trust

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

CONSENT FOR ACCESS TO PROPERTY

Name: DNR property within the Bremerton MGP Waste Release Site

Location: Tidal land adjacent to and north of 1725 Pennsylvania Avenue, Bremerton, WA

On behalf of Washington State, the Washington State Department of Natural Resources (DNR), hereby gives consent and permission, to the extent of the possessory interest State may have in the property and premises described above ("the property"), and any appurtenances thereto, to the following persons: 1) officers, employees, agents, and authorized representatives of the Environmental Protection Agency ("EPA authorized representatives"), 2) officers, employees, agents, and authorized representatives of the Coast Guard ("Coast Guard authorized representatives"), and 3) persons acting at the request of EPA and the Coast Guard, including officers, employees, agents, contractors, and authorized representative of Cascade Natural Gas Corporation.

This consent to enter the property is given to those persons described above for the purpose of Time Critical Actions (TCA) including: sampling for hazardous substances or pollutants or contaminants, and performing necessary response activities, which may include the removal, consolidation and/or stabilization of hazardous substances that have been released into the environment or which present a substantial threat of release. Such actions may include, but are not limited to:

A. The taking of such soil, surface water, groundwater, and air samples upon the property as may be determined to be necessary to complete TCA;

B. The taking of a response action at the property including site stabilization and mitigation activities, which include but are not limited to removing, consolidating and stabilizing hazardous substances located within the Site on the property and building a road across the property to access the contamination in the water to complete TCA;

C. All Applicable or Relevant and Appropriate Requirements (ARARs).

These actions by the EPA, the Coast Guard and Cascade Natural Gas and its contractors are undertaken pursuant to its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601, et *seq*., as amended, the Federal Water Pollution Control Act (or the "Clean Water Act"), 33 U.S.C. § 1251 et *seq*., as amended.

It is further understood that Non-Time Critical Actions (NTCA) pertaining to Remedial Investigation and/or remediation work will require a use authorization from the Washington State Department of Natural Resources.

Date: November 2, 2010

Signature: [signature]

Title: Aquatic Resources Division Manager

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

CONSENT FOR ACCESS TO PROPERTY

Name: Sesko Property within the Bremerton MGP Waste Release Site

Location: 1725 Pennsylvania Avenue, Bremerton, WA 98337
Tax Parcel. No. 3741-000-022-0101

I, Natacha Sesko, hereby give my consent and permission to enter my property and premises described above (the "property")to the extent of the possessory interest I may have and any appurtenances thereto, to the following persons: 1) officers, employees, agents, and authorized representatives of the Environmental Protection Agency ("EPA authorized representatives"), 2) officers, employees, agents, and authorized representatives of the Coast Guard("Coast Guard authorized representatives"), and 3) persons acting at the request of EPA and the Coast Guard, including officers, employees, agents, contractors, and authorized representative of Cascade Natural Gas Corporation.

This consent to enter the property is given to those persons described above for the purpose of: sampling for hazardous substances or pollutants or contaminants, and to performing necessary response activities, which may include the removal, consolidation and/or stabilization of hazardous substances that have been released into the environment or which present a substantial threat of release. Such actions may include, but are not limited to:

A. The taking of such soil, surface water, groundwater, and air samples upon the property as may be determined to be necessary;

B. The taking of a response action at the property including site stabilization and mitigation activities, which include but are not limited to removing, consolidating and stabilizing hazardous substances located within the Site on the property; staging equipment and materials on the property; ingress and egress for workers and equipment; restoring the functionality of an existing access road by clearing vegetation, minor grading, and placing gravel; and using the property to access the beach.

I recognize that these actions by the EPA, the Coast Guard and Cascade Natural Gas and its contractors are undertaken pursuant to its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9601, *et seq.*, as amended.

This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Date: Nov 2nd 2010

Signature: [signature]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

CONSENT FOR ACCESS TO PROPERTY

Name: McConkey Family Trust Property within the Bremerton MGP Waste Release Site

Location: 1723 Pennsylvania Avenue, Bremerton, WA 98337
Tax Parcel Nos. 3711-000-001-0409 and 3711-000 001-0607

McConkey Family Trust ("Owner") hereby gives its consent and permission to enter its property and premises described above(the "property"),to the extent of the possessory interest it may have and any appurtenances thereto, to the following persons: 1) officers, employees, agents, and authorized representatives of the Environmental Protection Agency ("EPA authorized representatives"), 2) officers, employees, agents, and authorized representatives of the Coast Guard ("Coast Guard authorized representatives"), and 3) persons acting at the request of EPA and the Coast Guard, including officers, employees, agents, contractors, and authorized representative of Cascade Natural Gas Corporation.

This consent to enter the property is given to those persons described above for the purpose of: sampling for hazardous substances or pollutants or contaminants, and to performing necessary response activities, which may include the removal, consolidation and/or stabilization of hazardous substances that have been released into the environment or which present a substantial threat of release. Such actions may include, but are not limited to:

A. The taking of such soil, surface water, groundwater, and air samples upon the property as may be determined to be necessary;

B. The taking of a response action at the property including site stabilization and mitigation activities, which include but are not limited to removing, consolidating and stabilizing hazardous substances located within the Site on the property; staging equipment and materials on the property; ingress and egress for workers and equipment; and using the property to access the beach.

Owner recognizes that these actions by the EPA, the Coast Guard and Cascade Natural Gas and its contractors are undertaken pursuant to its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9601, *et seq.*, as amended.

This written permission is given by Owner voluntarily with knowledge of Owner's right to refuse and without threats or promises of any kind.

Date: 10/29/10

Signature: [signature]

Printed Name: PAUL A. McCONKEY

Title: GENERAL MANAGER

APPENDIX F
ACTION FACT SHEET DISTRIBUTED TO COMMUNITY

Appendix F

ATTENTION

Night-time Beach Cleanup

An abandoned and broken cement pipe was discovered in the intertidal area near the former location of the Bremerton Manufactured Gas Plant, leading the U.S. Coast Guard to determine that prompt action is required.

Cascade Natural Gas Corporation is performing cleanup activities under the Coast Guard's oversight. These activities will occur at night to take advantage of low tides. Work includes:

- Sealing and removing portions of the pipe
- Backfilling the excavation created by removing the pipe with clean beach material
- Placing a protective mat over impacted sediments that are located near the terminus of the pipe and have been observed to generate sheen with minimal disturbance
- Transporting removed materials to a licensed disposal facility
- Continued maintenance of a containment system until the cleanup action is complete

If you have questions about the cleanup, please contact Cascade Natural Gas's project manager, Ed Berschinski, at 206-819-6009 or eberschinski@anchorqea.com.

Appendix G

APPENDIX G
ANCHOR QEA CONSTRUCTION INSPECTION REPORTS

November 5, 2010 (Night No. 1)
November 6, 2010 (Night No. 2)
November 7, 2010 (Night No. 3)

ANCHOR QEA

Daily Construction Report Number:

Work Hours: 08:30 11/5/2010 to 02:30 11/6/2010

Project Number: 100719 Day: Friday to Saturday Date: 11/5/2010 to 11/6/2010

Weather AM: Occ. showers L: 50 °F PM: Occasional showers H: 55 °F

Tides:

Time	Height
23:00	-2.1 (max low)

Contractor: Clearcreek Contractors (CCC), 9 persons total Sub: Ness Cranes, 2 persons total

Contractors Rep and Title: Mark McCollough (President), Paul Cumett (Foreman day), Jim (Foreman night)

Work Day Charge: Day: Reason:

Project Pictures? x Yes ☐ No Subject: See photolog for full record; pertinent pictures inserted on page 4

Visitors (project related): USCG (Dave Varela, Mike, Dorian Satterlee, Liz Adams, and Lewis Beck), EPA (Kathy Parker), and Department of Health (Grant Holdcroft)

Anchor QEA Personnel: Chris Torell, Nathan Soccorsy, and Ed Berschinski

Visitors (non-project related): None

Item #	Item Description	Quantity Today	√	Remarks
1	175 ton Ness crane	100' x 100'		HDPE liner (picture)
1	Loader	20' wide roll		Geotextile (picture)
1	138 Komatsu excavator	70 cy 10" minus gravel		Estimated quantity (picture)
1	Bobcat skid steer	20 cy 2" minus gravel		Estimated quantity (picture)
4	Genie TML-4000N light plants	12'		~12" OD, ~10" ID Concrete pipe (removed, picture)
1	Fork lift	12 cy		Sediments (removed, picture)
1	Trailer mounted water treatment plant	700 gallons		Removed from excavation (estimated quantity)
1	Baker tank			
3	Material containers			
2	3 cy skip boxes			
	Support trucks			
	Lumber			
1	Jon boat			
	Other miscellaneous supplies and materials (PPE, etc.)			

ANCHOR QEA

Diary (Report of Day's Operations, Orders given and received, discussions with contractor, visitors, unusual conditions, major material deliveries, delays)

08:30

10" minus gravel being delivered, CCC does morning H&S Meeting (6 CCC including Mark and Paul, Chris Torell [CT] of Anchor QEA)
CCC assembling materials and equipment

09:00

CT offsite for supplies

11:30

CT return, CCC building access stairs (2 x 4 and 2 x 10 wood)

11:45

HDPE liner and geotextile roll arrives
CT asked Paul in install silt fence downslope of 10" minus gravel pile at site edge
Sweeping area with Bobcat and attachment prior to building water containment area

12:00

Building water containment area (geotextile under HDPE liner, bermed by 4" pipe under folded edges). Baker tank, WTP, and material containers eventually placed in area.

14:00

Stairs finished
Baker tank delivered
2" minus gravel delivered

15:00

CT offsite to rest prior to night's work

18:30

CT return, 3 material containers have been delivered

19:00

Kathy Parker (EPA), David Varela and Mike (USCG), Ed Berschinski (Anchor QEA), Bob Hanford (Aspect) and night shift (CCC) onsite
Mark conducts H&S meeting (9 total CCC personnel onsite for shift)

20:00

Begin mobilizing light plant and excavator to beach with crane

21:30

Renee Nordeen (E&E, EPA consultant) arrives

22:15

Excavator and light plant on beach
Kathy Parker, Grant Holdcroft, and Ed Berschinski (Anchor QEA) depart

22:40

Bucket and skip box on beach
HDPE material placed under work area for spillage protection
Begin excavating for pipe at +40' from reference piling (picture)

23: 25

Pipe exposed at ~4' below grade
2 skip boxes sediment have been removed (6 cy)
Exposed soils stained at ~1' below grade
Creosote odor, air monitoring results below action levels (tenths of ppm on PID, LEL/O2 ok

ANCHOR QEA

23:35
Drill hole in pipe (concrete), clear water leaks out, minimal pressure Saw cutting pipe above bell for plug
23:55
Portion of bell removed (picture) Some gravel in pipe, trace NAPL Dorian Satterlee, Liz Adams and Lewis Beck (USCG) arrive Using trash pumps to pump water up to Baker tank
00:30
Continue excavating around pipe to facilitate plugging
01:20
Inflatable plug in place 3' into pipe, additional concrete added to plug 2 more skip boxes (one partially filled) sediment removed 12' downslope pipe removed and segregated in skip box
01:30
Placing 10" minus gravel (2 skip boxes) in excavation to approximately 2' below grade
02:10
Placing 2" minus gravel in excavation to grade (3 skip boxes)
02:30
Backfill complete CCC cleaning up work area and shutting down for night Existing containment booms replaced Additional booms placed near excavation CT offsite

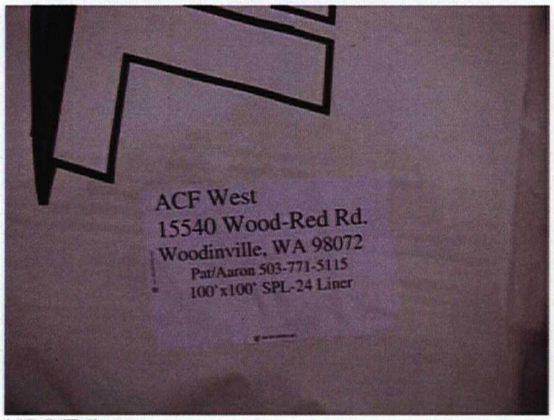
C. C. Troll

Construction Observer

Project Engineer

Pictures

HDPE liner



HDPE liner

Geotexile

ANCHOR QEA

Geotexile

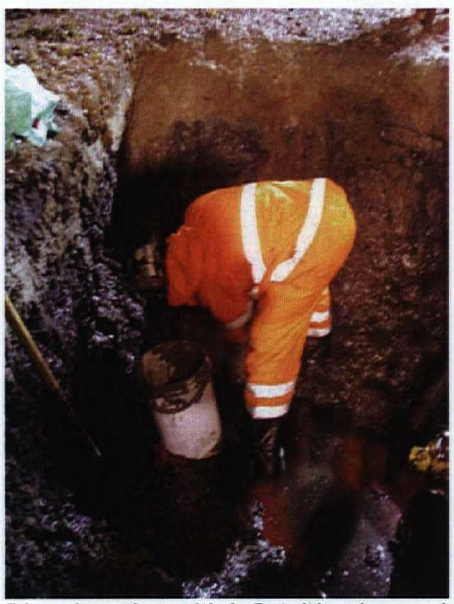

10" minus material


2" minus material

12/8/2010 10:24 AM EST

Excavation

Exposed pipe – plugging location



Plugging pipe with inflatable plug and quick set concrete

Removed pipe section

Backfilling with 10 inch minus material

ANCHOR QEA

Daily Construction Report Number:

Work Hours: 18:30 11/6/2010 to 01:30 11/7/2010

Project Number: 100719 Day: Saturday to Sunday Date: 11/6/2010 to 11/7/2010

Weather AM: Occ. showers L: 50 °F PM: Rain H: 55 °F

Tides:

Time	Height
23:41	-2.5 (mllw)

Contractor: Clearcreek Contractors (CCC) 7 persons total Sub: Ness Cranes (2 persons total)

Contractors Rep and Title: Paul Cumett (Foreman day) Jim (Foreman night)

Work Day Charge: ______ Day: ______ Reason: ______

Project Pictures? x Yes ☐ No Subject: See photolog for full record; pertinent pictures inserted on page 4

Visitors (project related): USCG (Dave Varela, Mike Caligaive, Wade Gough, Shay Hutchings), EPA (Kathy Parker, Brian Vasser), Department of Health (Grant Holdcroft), Aspect (Bob Hanford)

Anchor QEA Personnel Chris Torell, (CT) Nathan Soccorsy (NS), and Ed Berschinski

Visitors (non-project related) None

Item #	Item Description	Quantity Today	√	Remarks
1	175 ton Ness (Grove) crane	All remaining Pipe removed		~12" OD, ~10" ID Concrete pipe (removed)
1	Loader	12 cy		Sediments (removed)
1	138 Komatsu excavator	50 gallons		Removed from excavation (estimated quantity)
1	Bobcat skid steer			
4	Genie TML-4000N light plants			
1	Fork lift			
1	Trailer mounted water treatment plant			
1	Baker tank			
4	Material containers			
2	3 cy skip boxes			
	Support trucks			
1	Jon boat			
	Other miscellaneous supplies and materials (PPE, etc.)			
1	Vac Master			

ANCHOR QEA

Diary (Report of Day's Operations, Orders given and received, discussions with contractor, visitors, unusual conditions, major material deliveries, delays)

18:30
CT onsite

19:00
Kathy Parker (EPA), David Varela, Mike Caligaive (USCG) arrive
CCC conducts H&S meeting

19:30
Mobilizing light plant to beach
Ed Berschinski (Anchor QEA) arrives

20:00
Bob Hanford (Aspect), Grant Holdcroft (DOH) arrive
CT and NS (Anchor QEA) collecting sample of fines from 10" minus stone pile and sample of 2" minus gravel for potential future analysis if CCC does not obtain certification

21:30
Begin excavation at point left off from previous night

22:00
Skip box of sediment filled

22:15
8' pipe removed (all pipe segregated in separate skip box)
Skip box of sediment filled

22:40
8' pipe removed

22:30
4' pipe removed

22:50
8' pipe removed
Kathy Parker (EPA) and Grant Holdcroft (DOH) depart, Brian Vasser (EPA) arrives

23:00
Skip box of 2" minus placed (excavation <2' deep)

23:10
Skip box of 2" minus placed
CT and NS lay out corners of mat placement design

23:20
4' pipe removed

23:30
4' pipe removed

23:45
8' pipe removed

00:00
All pipe and sediments removed, backfilling with 2" minus

00:15
Wade Gough and Shay Hutchings (USGC) arrive

00:50
Excavation backfilled, CCC removing old fabric from sheen containment structure
CT offsite

12/8/2010 10:02 AM EST

ANCHOR
QEA

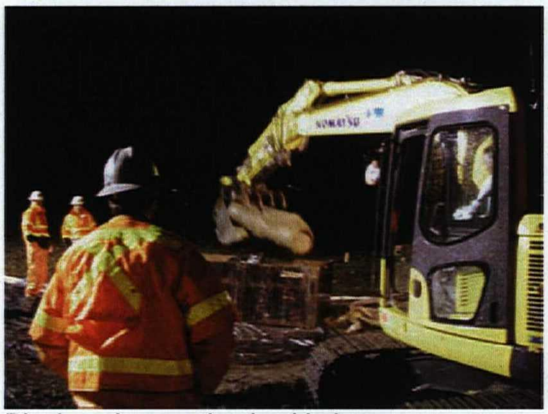
Construction Observer

Project Engineer

Pictures

Removing pipe from excavation

Material in end of pipe section



Placing pipe section in skip box


Smoothing completed backfill

ANCHOR QEA

Daily Construction Report Number:

Work Hours: 18:00 11/7/2010 to 01:15 11/8/2010

Project Number: 100719 Day: Sunday to Monday Date: 11/7/2010 to 11/8/2010

Weather AM: Pt. cloudy L: 50 °F PM: Pt. cloudy H: 48 °F

Tides:

Time	Height
00:25 11/8	-2.5 (max low)

Contractor: Clearcreek Contractors (CCC) 5 persons total Sub: Ness Cranes (2 persons total)

Contractors Rep and Title: Mark McCollough

Work Day Charge: ______ Day: ______ Reason: ______

Project Pictures? x Yes ☐ No Subject: See photolog for full record; pertinent pictures inserted on page 3

Visitors (project related): USCG (Dave Varela [DV], Mike Caligaive [MC], Danielle Wood), EPA (Kathy Parker [KP], Brian Vasser [BV]), Department of Health (Grant Holdcroft [GH]), Aspect (Bob Hanford), Cascade (Abbie Krebsbach [AK])

Anchor QEA Personnel: Chris Torell (CT), Nathan Soccorsy (NS), and Ed Berschinski (EB)

Visitors (non-project related): None

Item #	Item Description	Quantity Today	√	Remarks
1	175 ton Ness (Grove) crane	Approximately 2,250 sf		Organo-Clay mat
1	Loader	Approximately 115 cy		10" minus placed over mat
1	138 Komatsu excavator	50 gallons		Removed from excavation (estimated quantity)
1	Bobcat skid steer			
4	Genie TML-4000N light plants			
1	Fork lift			
1	Trailer mounted water treatment plant			
1	Baker tank			
4	Material containers			
1	3 cy skip boxes			
	Support trucks			
1	Jon boat			
	Other miscellaneous supplies and materials (PPE, etc.)			
1	Vac Master			

ANCHOR QEA

Diary (Report of Day's Operations, Orders given and received, discussions with contractor, visitors, unusual conditions, major material deliveries, delays)

18:00

CT onsite

18:20

CCC onsite (MM)

19:00

CCC (4 person crew), Ness Cranes (2 person crew) onsite
CCC conducts H&S meeting

19:30

CCC moves remaining material box off chassis

19:45

CCC cutting Organo-Clay mat into 4 x 50 sections, re-rolling and begin moving mat to beach

20:00

NS onsite, GPS location of end of pipe using Trimble GeoXH
N 21054493.87, E -4154641.18 US Feet

20:45

USCG onsite (DV, MC)

21:00

EPA onsite (KP)

21:20

Anchor QEA (EB), EPA (BV), DOH (GH) onsite

22:00

CCC begins covering sediments with mat by hand (tide finally recedes sufficiently), 4 x 50' sections, 5' total lateral overlap (1', 3', 1')

Anchor QEA GPS mat corners

N 21054493.78 E -4154617.36, N 21054528.72 E -4154656.90, N 21054572.59 E -4154626.46, N 21054534.49 E -4154582.49

22:30

Cascade (AK) and USCG (DW) onsite
CCC placing 10" minus in 12" thick nominal layer, ~10' lateral overplacement around mat

00:10

Toe of mat waterward covered, ~75% mat covered

00:30

Mat fully covered, feathering edges

02:00

Material demobilization from the intertidal work zone

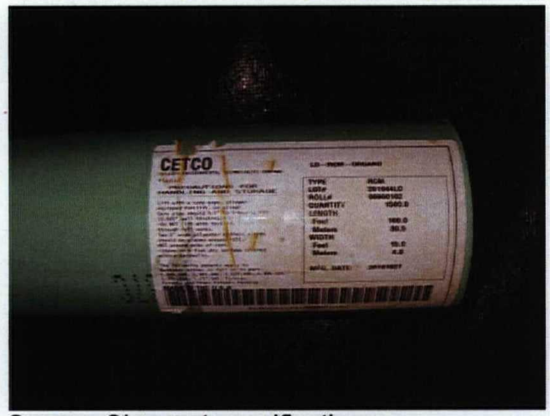
C R Troll

Construction Observer

Project Engineer

ANCHOR QEA

Pictures



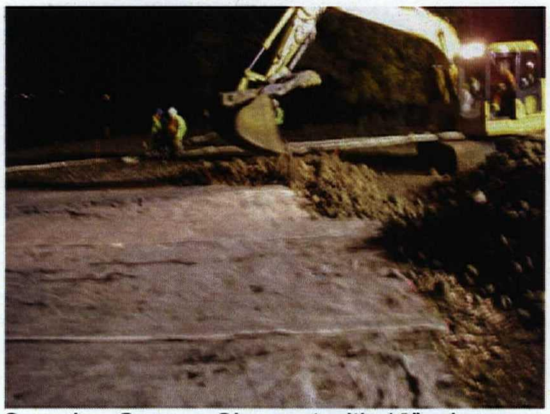
Organo-Clay mat specifications


Trimming Organo-Clay mat


Transporting Organo-Clay mats to beach

Placing Organo-Clay mat on beach

Transporting 10" minus to beach



Covering Organo-Clay mat with 10" minus

ANCHOR QEA

Organo-Clay mat 75% covered

Organo-Clay mat 100% covered just prior to de-mobilization

Appendix H

APPENDIX H
ORGANO-CLAY MAT SPECIFICATIONS

REMEDIATION TECHNOLOGIES
Technical Data

CETCO®

REACTIVE CORE MAT®
with ORGANOCLAY®

PRODUCT DESCRIPTION

Organoclay® Reactive Core Mat® (RCM) is designed for use in the following applications:

- In-situ subaqueous cap for contaminated sediments or post-dredge residual sediments
- Embankment seepage control
- Groundwater remediation

Organoclay® Reactive Core Mat® is a permeable composite of geotextiles and a non-swelling granular clay compound that reliably adsorbs oil and similar organics from water.

BENEFITS

- RCM provides a reactive material that treats contaminants which are carried by advective or diffusive flow
- Reactive cap allows for thinner cap thickness than a traditional sand cap
- Geotextiles provide stability and physical isolation

PHYSICAL PROPERTIES

PROPERTIES	TEST METHOD	VALUE
ORGANOCLAY[1]		
Bulk Density Range	CETCO Test Method	44 – 56 lbs/ft^3
Oil Adsorption Capacity	CETCO Test Method	0.5 lb of oil per lb of organoclay, min
Quaternary Amine Content	CETCO Test Method	25 – 33% quaternary amine loading
FINISHED RCM PRODUCT		
Organoclay Mass per Area	CETCO Test Method	0.8 lb/ft^2
Mat Grab Strength[2]	CETCO Test Method	90 lbs. MARV
Hydraulic Conductivity[3]	CETCO Test Method	1 x 10^{-3} cm/sec minimum

Notes
[1] Apatite properties performed periodically on material prior to incorporation into the RCM.
[2] All tensile testing is performed in the machine direction.
[3] Permittivity at constant head of 2 inches and converted to hydraulic conductivity using Darcy's Law and RCM thickness per ASTM D5199 for geotextiles.

PACKAGING

- 15' x 100' rolls, packaged on 4" PVC core tubes wrapped with polyethylene plastic packaging

AVAILABILITY

Shipping is available from the following location:

- CETCO, 218 NE Industrial Park Rd, Cartersville, GA

Contact your local technical sales manager at:
714-384-0111 or 800-527-9948

Rev. 1/10

Appendix I

APPENDIX I
SITE PHOTOS TAKEN ON
NOVEMBER 12, 2010

ANCHOR QEA

Photograph Log

Time and Date: 12:00 11/12/2010

Project Number:	100719			Day:	Friday	Date:	11/12/2010	
Weather AM:	Clear	L:	50	°F	PM:		H: 55	°F

Pictures

View of staging area to the west

View of staging area to the southwest

View of staging area to the south

Baker tank staged on site

Boom containment system from the upland staging area

Intertidal view to the east


Intertidal view to the north (1)


Intertidal view to the north (2

Intertidal view to the west

View with remaining Pipe location stakes

Signage on beach

View from top of Sesko property

View of area where staircase was removed

View of sign from Pennsylvania Ave

Close up of sign from Pennsylvania Ave

Appendix J

APPENDIX J
ANALYTICAL DATA FOR MATERIALS REMOVED DURING THE ACTION

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

November 22, 2010

Jeremy Porter, Project Manager
Aspect Consulting
401 2nd Ave S, Suite 201
Seattle, WA 98104

Dear Mr. Porter:

Included are the results from the testing of material submitted on November 8, 2010 from the Bremerton Former Manufactured Gas Plant, F&BI 011095 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: data@aspectconsulting.com
ASP1122R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 8, 2010 by Friedman & Bruya, Inc. from the Aspect Consulting Gas Plant, F&BI 011095 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting
011095-01	Tank 110710

The 8260C calibration standard failed the acceptance criteria for o-xylene. The data were flagged accordingly.

The 8270D calibration standard failed the acceptance criteria for 3+4 methylphenol. The data were flagged accordingly.

Several compounds in the 8260C and 8270D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analytes were not detected in the sample, therefore the data were acceptable.

All other quahty control requirements were acceptable.

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Bremerton Former Manufactured Gas Plant, F&BI 011095
Date Extracted: 11/09/10
Date Analyzed: 11/09/10

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
Tank 110710 011095-01	1,300	84
Method Blank	<100	77

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Bremerton Former Manufactured Gas Plant, F&BI 011095
Date Extracted: 11/09/10
Date Analyzed: 11/10/10

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
Tank 110710 011095-01	4,800	2,000	ip
Method Blank 00-1826 MB2	<50	<250	103

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Tank 110710	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Gas Plant, F&BI 011095
Date Extracted:	11/10/10	Lab ID:	011095-01
Date Analyzed:	11/10/10	Data File:	111019.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	63	127
Toluene-d8	100	65	127
4-Bromofluorobenzene	99	69	127

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	10
Acetone	69	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	19
Methylene chloride	6.7	o-Xylene	15 jl
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	2.0
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	1.6
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	6.3
2-Butanone (MEK)	12	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	8.3
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	350 ve
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Tank 110710	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Gas Plant, F&BI 011095
Date Extracted:	11/11/10	Lab ID:	011095-01 1/100
Date Analyzed:	11/11/10	Data File:	111115.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	63	127
Toluene-d8	94	65	127
4-Bromofluorobenzene	93	69	127

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100	1,3-Dichloropropane	<100
Chloromethane	<1,000	Tetrachloroethene	<100
Vinyl chloride	<20	Dibromochloromethane	<100
Bromomethane	<100	1,2-Dibromoethane (EDB)	<100
Chloroethane	<100	Chlorobenzene	<100
Trichlorofluoromethane	<100	Ethylbenzene	<100
Acetone	<1,000	1,1,1,2-Tetrachloroethane	<100
1,1-Dichloroethene	<100	m,p-Xylene	<200
Methylene chloride	<500	o-Xylene	<100
Methyl t-butyl ether (MTBE)	<100	Styrene	<100
trans-1,2-Dichloroethene	<100	Isopropylbenzene	<100
1,1-Dichloroethane	<100	Bromoform	<100
2,2-Dichloropropane	<100	n-Propylbenzene	<100
cis-1,2-Dichloroethene	<100	Bromobenzene	<100
Chloroform	<100	1,3,5-Trimethylbenzene	<100
2-Butanone (MEK)	<1,000	1,1,2,2-Tetrachloroethane	<100
1,2-Dichloroethane (EDC)	<100	1,2,3-Trichloropropane	<100
1,1,1-Trichloroethane	<100	2-Chlorotoluene	<100
1,1-Dichloropropene	<100	4-Chlorotoluene	<100
Carbon tetrachloride	<100	tert-Butylbenzene	<100
Benzene	<35	1,2,4-Trimethylbenzene	<100
Trichloroethene	<100	sec-Butylbenzene	<100
1,2-Dichloropropane	<100	p-Isopropyltoluene	<100
Bromodichloromethane	<100	1,3-Dichlorobenzene	<100
Dibromomethane	<100	1,4-Dichlorobenzene	<100
4-Methyl-2-pentanone	<1,000	1,2-Dichlorobenzene	<100
cis-1,3-Dichloropropene	<100	1,2-Dibromo-3-chloropropane	<1,000
Toluene	<100	1,2,4-Trichlorobenzene	<100
trans-1,3-Dichloropropene	<100	Hexachlorobutadiene	<100
1,1,2-Trichloroethane	<100	Naphthalene	540
2-Hexanone	<1,000	1,2,3-Trichlorobenzene	<100

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	NA	Project:	Gas Plant, F&Bl 011095
Date Extracted:	11/11/10	Lab ID:	001783 mb
Date Analyzed:	11/11/10	Data File:	111110.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	63	127
Toluene-d8	95	65	127
4-Bromofluorobenzene	95	69	127

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	NA	Project:	Gas Plant, F&BI 011095
Date Extracted:	11/10/10	Lab ID:	001780 mb
Date Analyzed:	11/10/10	Data Flie:	111011.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	63	127
Toluene-d8	99	65	127
4-Bromofluorobenzene	98	69	127

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Tank 110710	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Gas Plant, F&BI 011095
Date Extracted:	11/09/10	Lab ID:	011095-01
Date Analyzed:	11/20/10	Data File:	111931.D
Matrix:	Water	Instrument:	GCMS3
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	81	27	76
Phenol-d6	76	13	58
Nitrobenzene-d5	97	55	115
2-Fluorobiphenyl	105	51	113
2,4,6-Tribromophenol	96	28	107
Terphenyl-d14	125	45	119

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<50	3-Nitroanilline	<15
Bis(2-chloroethyl) ether	<5	Acenaphthene	84
2-Chlorophenol	<50	2,4-Dinitrophenol	<150
1,3-Dichlorobenzene	<5	Dibenzofuran	11
1,4-Dichlorobenzene	<5	2,4-Dinitrotoluene	<5
1,2-Dichlorobenzene	<5	4-Nitrophenol	<50
Benzyl alcohol	<5	Diethyl phthalate	<5
Bis(2-chloroisopropyl) ether	<5	Fluorene	79
2-Methylphenol	<50	4-Chlorophenyl phenyl ether	<5
Hexachloroethane	<5	N-Nitrosodiphenylamine	<5
N-Nitroso-di-n-propylamine	<5	4-Nitroanlline	<50
3-Methylphenol + 4-Methylphenol	<100 jl	4,6-Dinitro-2-methylphenol	<150
Nitrobenzene	<5	4-Bromophenyl phenyl ether	<5
Isophorone	<5	Hexachlorobenzene	<5
2-Nitrophenol	<50	Pentachlorophenol	<50
2,4-Dimethylphenol	<50	Phenanthrene	200
Benzoic acid	<250	Anthracene	27
Bis(2-chloroethoxy)methane	<5	Carbazole	19
2,4-Dichlorophenol	<50	Di-n-butyl phthalate	<5
1,2,4-Trichlorobenzene	<5	Fluoranthene	62
Naphthalene	<5	Pyrene	90
Hexachlorobutadiene	<5	Benzyl butyl phthalate	<5
4-Chloroaniline	<15	Benz(a)anthracene	17
4-Chloro-3-methylphenol	<50	Chrysene	18
2-Methylnaphthalene	220	Bis(2-ethylhexyl) phthalate	<50
Hexachlorocyclopentadiene	<15	Di-n-octyl phthalate	<5
2,4,6-Trichlorophenol	<50	Benzo(a)pyrene	13
2,4,5-Trichlorophenol	<50	Benzo(b)fluoranthene	16
2-Chloronaphthalene	<5	Benzo(k)fluoranthene	5.6
2-Nitroanillne	<5	Indeno(1,2,3-cd)pyrene	7.3
Dimethyl phthalate	<5	Dibenz(a,h)anthracene	<5
Acenaphthylene	30	Benzo(g,h,i)perylene	10
2,6-Dinitrotoluene	<5		

Analysis For Semivolatile Compounds By EPA Method 8270D

Cllent Sample ID:	Method Blank	Cllent:	Aspect Consulting
Date Received:	NA	Project:	Gas Plant, F&BI 011095
Date Extracted:	11/09/10	Lab ID:	00-1832 mb2
Date Analyzed:	11/11/10	Data Flle:	111019.D
Matrix:	Water	Instrument:	GCMS3
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	71	27	76
Phenol-d6	40	13	58
Nitrobenzene-d5	97	55	115
2-Fluorobiphenyl	120	51	113
2,4,6-Tribromophenol	86	28	107
Terphenyl-d14	134	45	119

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
N-Nitrosodimethylamine	<1	Acenaphthene	<1
Phenol	<10	2,4-Dinitrophenol	<30
Bis(2-chloroethyl) ether	<1	Dibenzofuran	<1
2-Chlorophenol	<10	2,4-Dinitrotoluene	<1
1,3-Dichlorobenzene	<1	4-Nitrophenol	<10
1,4-Dichlorobenzene	<1	Diethyl phthalate	<1
1,2-Dichlorobenzene	<1	Fluorene	<1
Benzyl alcohol	<1	4-Chlorophenyl phenyl ethe	<1
Bis(2-chloroisopropyl) eth	<1	1,2-Diphenylhydrazine	<1
2-Methylphenol	<10	N-Nitrosodiphenylamine	<1
Hexachloroethane	<1	4-Nitroanlline	<10
N-Nitroso-di-n-propylamine	<1	4,6-Dinitro-2-methylphenol	<30
3-Methylphenol + 4-Methylp	<10 jl	4-Bromophenyl phenyl ether	<1
Nitrobenzene	<1	Hexachlorobenzene	<1
Isophorone	<1	Pentachlorophenol	<10
2-Nitrophenol	<10	Phenanthrene	<1
2,4-Dimethylphenol	<10	Anthracene	<1
Benzoic acid	<100	Carbazole	<1
Bis(2-chloroethoxy)methane	<1	Di-n-butyl phthalate	<1
2,4-Dichlorophenol	<10	Fluoranthene	<1
1,2,4-Trichlorobenzene	<1	Benzidine	<20
Naphthalene	<1	Pyrene	<1
Hexachlorobutadiene	<1	Benzyl butyl phthalate	<1
4-Chloroaniline	<3	3,3'-Dichlorobenzidine	<10
4-Chloro-3-methylphenol	<10	Benz(a)anthracene	<1
2-Methylnaphthalene	<1	Chrysene	<1
Hexachlorocyclopentadiene	<3	Bis(2-ethylhexyl) phthalat	<10
2,4,6-Trichlorophenol	<10	Di-n-octyl phthalate	<1
2,4,5-Trichlorophenol	<10	Benzo(a)pyrene	<1
2-Chloronaphthalene	<1	Benzo(b)fluoranthene	<1
2-Nitroanillne	<1	Benzo(k)fluoranthene	<1
Dimethyl phthalate	<1	Indeno(1,2,3-cd)pyrene	<1
Acenaphthylene	<1	Dibenz(a,h)anthracene	<1
2,6-Dinitrotoluene	<1	Benzo(g,h,i)perylene	<1
3-Nitroanlline	<3		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Bremerton Former Manufactured Gas Plant, F&BI 011095

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 011095-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	95	69-134

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Bremerton Former Manufactured Gas Plant, F&BI 011095

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	97	100	58-134	3

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Bremerton Former Manufactured Gas Plant, F&BI 011095

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 011095-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<10	131	28-164
Chloromethane	ug/L (ppb)	50	<10	143	26-167
Vinyl chloride	ug/L (ppb)	50	<0.2	121	37-171
Bromomethane	ug/L (ppb)	50	<1	103	24-165
Chloroethane	ug/L (ppb)	50	<1	104	10-172
Trichlorofluoromethane	ug/L (ppb)	50	<1	83	30-199
Acetone	ug/L (ppb)	250	69	119 b	19-168
1,1-Dichloroethene	ug/L (ppb)	50	<1	100	35-149
Methylene chloride	ug/L (ppb)	50	6.7	95	61-124
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	100	49-139
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	105	65-128
1,1-Dichloroethane	ug/L (ppb)	50	<1	108	67-127
2,2-Dichloropropane	ug/L (ppb)	50	<1	103	23-163
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	113	65-139
Chloroform	ug/L (ppb)	50	<1	98	71-127
2-Butanone (MEK)	ug/L (ppb)	250	<10	106	47-162
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	94	68-132
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	99	63-135
1,1-Dichloropropene	ug/L (ppb)	50	<1	113	65-127
Carbon tetrachloride	ug/L (ppb)	50	<1	97	55-139
Benzene	ug/L (ppb)	50	<0.35	105	62-144
Trichloroethene	ug/L (ppb)	50	<1	102	68-134
1,2-Dichloropropane	ug/L (ppb)	50	<1	112	73-130
Bromodichloromethane	ug/L (ppb)	50	<1	97	65-135
Dibromomethane	ug/L (ppb)	50	<1	101	65-135
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	109	56-143
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	108	55-146
Toluene	ug/L (ppb)	50	<1	106	68-131
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	98	63-147
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	101	63-143
2-Hexanone	ug/L (ppb)	250	<10	114	51-149
1,3-Dichloropropane	ug/L (ppb)	50	<1	105	72-126
Tetrachloroethene	ug/L (ppb)	50	<1	110	64-132
Dibromochloroinethane	ug/L (ppb)	50	<1	101	65-135
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	108	77-127
Chlorobenzene	ug/L (ppb)	50	<1	99	72-118
Ethylbenzene	ug/L (ppb)	50	<1	100	51-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	100	72-129
m,p-Xylene	ug/L (ppb)	100	19	103	72-137
o-Xylene	ug/L (ppb)	50	15	114 b	67-133
Styrene	ug/L (ppb)	50	<1	109	73-126
Isopropylbenzene	ug/L (ppb)	50	2.0	109	65-135
Bromoform	ug/L (ppb)	50	<1	96	60-136
n-Propylbenzene	ug/L (ppb)	50	1.6	103	66-133
Bromobenzene	ug/L (ppb)	50	<1	107	70-129
1,3,5-Trimethylbenzene	ug/L (ppb)	50	6.3	106	72-130
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	100	65-137
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	97	66-135
2-Chlorotoluene	ug/L (ppb)	50	<1	109	62-131
4-Chlorotoluene	ug/L (ppb)	50	<1	107	62-132
tert-Butylbenzene	ug/L (ppb)	50	<1	112	64-135
1,2,4-Trimethylbenzene	ug/L (ppb)	50	8.3	104	69-139
sec-Butylbenzene	ug/L (ppb)	50	<1	109	64-134
p-Isopropyltoluene	ug/L (ppb)	50	<1	114	69-134
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	101	65-126
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	100	65-121
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	103	64-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	103	54-133
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	109	63-141
Hexachlorobutadiene	ug/L (ppb)	50	<1	98	53-140
Naphthalene	ug/L (ppb)	50	350 ve	51 b	40-166
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	107	55-148

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Bremerton Former Manufactured Gas Plant, F&BI 011095

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	142 vo	137	27-138	4
Chloromethane	ug/L (ppb)	50	155 vo	152 vo	49-125	2
Vinyl chloride	ug/L (ppb)	50	129	127	53-131	2
Bromomethane	ug/L (ppb)	50	102	99	62-148	3
Chloroethane	ug/L (ppb)	50	106	106	30-176	0
Trichlorofluoromethane	ug/L (ppb)	50	82	82	65-172	0
Acetone	ug/L (ppb)	250	117	113	32-177	3
1,1-Dichloroethene	ug/L (ppb)	50	103	101	68-131	2
Methylene chloride	ug/L (ppb)	50	106	104	17-177	2
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	108	105	54-156	3
trans-1,2-Dichlproethene	ug/L (ppb)	50	111	107	71-128	4
1,1-Dichloroethane	ug/L (ppb)	50	110	107	74-118	3
2,2-Dichloropropane	ug/L (ppb)	50	117	113	65-150	3
cis-1,2-Dichloroethene	ug/L (ppb)	50	122	118	74-126	3
Chloroform	ug/L (ppb)	50	103	100	76-118	3
2-Butanone (MEK)	ug/L (ppb)	250	110	107	52-152	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	95	93	77-118	2
1,1,1-Trichloroethane	ug/L (ppb)	50	105	102	77-123	3
1,1-Dichloropropene	ug/L (ppb)	50	120	117	75-122	3
Carbon tetrachloride	ug/L (ppb)	50	101	98	76-126	3
Benzene	ug/L (ppb)	50	116	113	77-121	3
Trichloroethene	ug/L (ppb)	50	106	105	74-119	1
1,2-Dichloropropane	ug/L (ppb)	50	118	114	77-121	3
Bromodichloromethane	ug/L (ppb)	50	98	97	77-129	1
Dibromomethane	ug/L (ppb)	50	106	104	79-121	2
4-Methyl-2-pentanone	ug/L (ppb)	250	111	108	65-135	3
cis-1,3-Dichloropropene	ug/L (ppb)	50	115	111	79-129	4
Toluene	ug/L (ppb)	50	114 vo	112	81-113	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	103	102	90-128	1
1,1,2-Trichloroethane	ug/L (ppb)	50	104	102	89-113	2
2-Hexanone	ug/L (ppb)	250	109	108	58-160	1
1,3-Dichloropropane	ug/L (ppb)	50	109	107	89-113	2
Tetrachloroethene	ug/L (ppb)	50	117	114	77-126	3
Dibromochloromethane	ug/L (ppb)	50	103	102	89-128	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	112	110	88-122	2
Chlorobenzene	ug/L (ppb)	50	105	103	86-118	2
Ethylbenzene	ug/L (ppb)	50	108	105	83-116	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	103	101	86-124	2
m,p-Xylene	ug/L (ppb)	100	113	110	84-120	3
o-Xylene	ug/L (ppb)	50	121 vo	120	83-120	1
Styrene	ug/L (ppb)	50	116	115	87-119	1
Isopropylbenzene	ug/L (ppb)	50	114	112	83-120	2
Bromoform	ug/L (ppb)	50	98	97	77-119	1
n-Propylbenzene	ug/L (ppb)	50	111	109	83-118	2
Bromobenzene	ug/L (ppb)	50	114	111	88-117	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	113	111	85-121	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	104	102	83-115	2
1,2,3-Trichloropropane	ug/L (ppb)	50	99	97	83-114	2
2-Chlorotoluene	ug/L (ppb)	50	112	109	81-116	3
4-Chlorotoluene	ug/L (ppb)	50	111	109	83-117	2
tert-Butylbenzene	ug/L (ppb)	50	117	115	84-118	2
1,2,4-Trimethylbenzene	ug/L (ppb)	50	114	112	86-119	2
sec-Butylbenzene	ug/L (ppb)	50	114	112	84-121	2
p-Isopropyltoluene	ug/L (ppb)	50	118	116	85-118	2
1,3-Dichlorobenzene	ug/L (ppb)	50	106	104	85-118	2
1,4-Dichlorobenzene	ug/L (ppb)	50	104	102	85-119	2
1,2-Dichlorobenzene	ug/L (ppb)	50	108	106	81-117	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	102	102	62-136	0
1,2,4-Trichlorobenzene	ug/L (ppb)	50	116	115	75-129	1
Hexachlorobutadiene	ug/L (ppb)	50	107	106	72-138	1
Naphthalene	ug/L (ppb)	50	112	111	66-135	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	113	112	70-133	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Bremerton Former Manufactured Gas Plant, F&BI 011095

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	142 vo	138	27-138	3
Chloromethane	ug/L (ppb)	50	148 vo	145 vo	49-125	2
Vinyl chloride	ug/L (ppb)	50	124	123	53-131	1
Bromomethane	ug/L (ppb)	50	106	104	62-148	2
Chloroethane	ug/L (ppb)	50	108	107	30-176	1
Trichlorofluoromethane	ug/L (ppb)	50	92	92	65-172	0
Acetone	ug/L (ppb)	250	112	111	32-177	1
1,1-Dichloroethene	ug/L (ppb)	50	106	104	68-131	2
Methylene chloride	ug/L (ppb)	50	104	103	17-177	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	108	107	54-156	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	105	105	71-128	0
1,1-Dichloroethane	ug/L (ppb)	50	110	109	74-118	1
2,2-Dichloropropane	ug/L (ppb)	50	117	115	65-150	2
cis-1,2-Dichloroethene	ug/L (ppb)	50	117	114	74-126	3
Chloroform	ug/L (ppb)	50	106	106	76-118	0
2-Butanone (MEK)	ug/L (ppb)	250	107	107	52-152	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	105	105	77-118	0
1,1,1-Trichloroethane	ug/L (ppb)	50	111	110	77-123	1
1,1-Dichloropropene	ug/L (ppb)	50	120	119	75-122	1
Carbon tetrachloride	ug/L (ppb)	50	107	108	76-126	1
Benzene	ug/L (ppb)	50	113	111	77-121	2
Trichloroethene	ug/L (ppb)	50	107	105	74-119	2
1,2-Dichloropropane	ug/L (ppb)	50	115	115	77-121	0
Bromodichloromethane	ug/L (ppb)	50	104	103	77-129	1
Dibromomethane	ug/L (ppb)	50	108	106	79-121	2
4-Methyl-2-pentanone	ug/L (ppb)	250	108	108	65-135	0
cis-1,3-Dichloropropene	ug/L (ppb)	50	114	114	79-129	0
Toluene	ug/L (ppb)	50	112	110	81-113	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	105	104	90-128	1
1,1,2-Trichlaroethane	ug/L (ppb)	50	102	101	89-113	1
2-Hexanone	ug/L (ppb)	250	117	118	58-160	1
1,3-Dichloropropane	ug/L (ppb)	50	109	108	89-113	1
Tetrachloroethene	ug/L (ppb)	50	114	112	77-126	2
Dibromochloromethane	ug/L (ppb)	50	106	105	89-128	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	111	111	88-122	0
Chlorobenzene	ug/L (ppb)	50	104	103	86-118	1
Ethylbenzene	ug/L (ppb)	50	110	110	83-116	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	104	103	86-124	1
m,p-Xylene	ug/L (ppb)	100	112	110	84-120	2
o-Xylene	ug/L (ppb)	50	120	119	83-120	1
Styrene	ug/L (ppb)	50	114	114	87-119	0
Isopropylbenzene	ug/L (ppb)	50	118	117	83-120	1
Bromoform	ug/L (ppb)	50	100	101	77-119	1
n-Propylbenzene	ug/L (ppb)	50	113	112	83-118	1
Bromobenzene	ug/L (ppb)	50	111	111	88-117	0
1,3,5-Trimethylbenzene	ug/L (ppb)	50	114	113	85-121	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	101	102	83-115	1
1,2,3-Trichloropropane	ug/L (ppb)	50	99	100	83-114	1
2-Chlorotoluene	ug/L (ppb)	50	113	112	81-116	1
4-Chlorotoluene	ug/L (ppb)	50	112	112	83-117	0
tert-Butylbenzene	ug/L (ppb)	50	118	117	84-118	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	116	115	86-119	1
sec-Butylbenzene	ug/L (ppb)	50	115	114	84-121	1
p-Isopropyltoluene	ug/L (ppb)	50	120 vo	119 vo	85-118	1
1,3-Dichlorobenzene	ug/L (ppb)	50	105	104	85-118	1
1,4-Dichlorobenzene	ug/L (ppb)	50	104	103	85-119	1
1,2-Dichlorobenzene	ug/L (ppb)	50	107	106	81-117	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	108	108	62-136	0
1,2,4-Trichlorobenzene	ug/L (ppb)	50	116	113	75-129	3
Hexachlorobutadiene	ug/L (ppb)	50	108	106	72-138	2
Naphthalene	ug/L (ppb)	50	112	111	66-135	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	112	112	70-133	0

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Bremerton Former Manufactured Gas Plant, F&BI 011095

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	50	31	30	20-50	15
Bis(2-chloroethyl) ether	ug/L (ppb)	50	88	91	29-124	3
2-Chlorophenol	ug/L (ppb)	50	77	82	43-101	6
1,3-Dichlorobenzene	ug/L (ppb)	50	87	91	50-109	4
1,4-Dichlorobenzene	ug/L (ppb)	50	82	86	45-103	5
1,2-Dichlorobenzene	ug/L (ppb)	50	93	97	50-112	4
Benzyl alcohol	ug/L (ppb)	50	71	78	35-111	9
Bis(2-chloroisopropyl) ether	ug/L (ppb)	50	80	81	45-140	1
2-Methylphenol	ug/L (ppb)	50	47	52	43-93	10
Hexachloroethane	ug/L (ppb)	50	87	90	46-114	3
N-Nitroso-di-n-propylamine	ug/L (ppb)	50	82	85	45-114	4
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	50	58 vo	66 vo	70-130	13
Nitrobenzene	ug/L (ppb)	50	89	93	50-111	4
Isophorone	ug/L (ppb)	50	82	86	52-120	5
2-Nitrophenol	ug/L (ppb)	50	72	77	50-104	7
2,4-Dimethylphenol	ug/L (ppb)	50	65	58	38-94	11
Benzoic acid	ug/L (ppb)	75	30	44	10-53	38 vo
Bis(2-chloroethoxy)methane	ug/L (ppb)	50	91	95	48-110	4
2,4-Dichlorophenol	ug/L (ppb)	50	87	90	51-104	3
1,2,4-Trichlorobenzene	ug/L (ppb)	50	95	99	45-110	4
Naphthalene	ug/L (ppb)	50	92	92	42-115	0
Hexachlorobutadiene	ug/L (ppb)	50	93	96	35-120	3
4-Chloroaniline	ug/L (ppb)	50	68	70	10-143	3
4-Chloro-3-methylphenol	ug/L (ppb)	50	77	83	46-107	7
2-Methylnaphthalene	ug/L (ppb)	50	94	96	41-133	2
Hexachlorocyclopentadiene	ug/L (ppb)	50	66	70	23-131	6
2,4,6-Trichlorophenol	ug/L (ppb)	50	76	81	47-118	6
2,4,5-Trichlorophenol	ug/L (ppb)	50	92	92	48-110	0
2-Chloronaphthalene	ug/L (ppb)	50	101	102	53-111	1
2-Nitroaniline	ug/L (ppb)	50	93	95	50-124	2
Dimethyl phthalate	ug/L (ppb)	50	91	94	55-124	3
Acenaphthylene	ug/L (ppb)	50	98	100	49-121	2
2,6-Dinitrotoluene	ug/L (ppb)	50	94	96	48-117	2
3-Nitroaniline	ug/L (ppb)	50	75	78	10-243	4
Acenaphthene	ug/L (ppb)	50	100	102	41-114	2
2,4-Dinitrophenol	ug/L (ppb)	50	100	112	44-118	11
Dibenzofuran	ug/L (ppb)	50	99	100	44-132	1
2,4-Dinitrotoluene	ug/L (ppb)	50	97	98	46-119	1
4-Nitrophenol	ug/L (ppb)	50	38	42	15-66	10
Diethyl phthalate	ug/L (ppb)	50	96	98	55-115	2
Fluorene	ug/L (ppb)	50	97	95	47-128	2
4-Chlorophenyl phenyl ether	ug/L (ppb)	50	102	102	55-125	0
N-Nitrosodiphenylamine	ug/L (ppb)	50	95	97	22-133	2
4-Nitroaniline	ug/L (ppb)	50	99	97	29-170	2
4,6-Dinitro-2-methylphenol	ug/L (ppb)	50	101	110	38-134	9
4-Bromophenyl phenyl ether	ug/L (ppb)	50	92	94	54-113	2
Hexachlorobenzene	ug/L (ppb)	50	98	100	37-110	2
Pentachlorophenol	ug/L (ppb)	50	86	89	40-122	3
Phenanthrene	ug/L (ppb)	50	97	98	48-124	1
Anthracene	ug/L (ppb)	50	94	95	49-123	1
Carbazole	ug/L (ppb)	50	96	96	38-162	0
Di-n-butyl phthalate	ug/L (ppb)	50	98	98	53-113	0
Fluoranthene	ug/L (ppb)	50	94	96	49-121	2
Pyrene	ug/L (ppb)	50	87	91	35-115	4
Benzyl butyl phthalate	ug/L (ppb)	50	89	91	24-132	2
Benz(a)anthracene	ug/L (ppb)	50	82	85	47-121	4
Chrysene	ug/L (ppb)	50	91	100	39-126	9
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	50	92	95	36-148	3
Di-n-octyl phthalate	ug/L (ppb)	50	100	100	46-132	0
Benzo(a)pyrene	ug/L (ppb)	50	88	89	39-121	1
Benzo(b)fluoranthene	ug/L (ppb)	50	82	83	39-119	1
Benzo(k)fluoranthene	ug/L (ppb)	50	88	90	42-167	2
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	50	84	85	37-137	1
Dibenz(a,h)anthracene	ug/L (ppb)	50	85	109	41-134	25 vo
Benzo(g,h,i)perylene	ug/L (ppb)	50	87	86	41-141	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The cahbration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control hmits. The vanability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control hmits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a hbrary search.

nm - The analyte was not detected in one or more of the duphcate analyses. Therefore, calculation of the RPD is not apphcable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument cahbration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control hmits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

011 045

CHAIN OF CUSTODY ME 11-08-10

Aspect Consulting, LLC
179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370
(206) 780-9438 FAX

Project #

Project Name:

Requested Laboratory Analysis

WSG = Composition Water; Soil; or Gas

G/C = Grab or Composite

NUM = Number of Containers

Sampled By:

Bill To:

Sample #	Date	Time	WSG	G/C	Location	NUM	8260	TPH-Gx	TPH-Dx	HCID	8270					Lab ID	Remarks
Tank 110710	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X	X	X	X	X					01 A-D	Hold any remaining samples

Relinquished By: [signature]	Received By: [signature]		8 Hour Rush
Date: 11/8/10 Time: 13:45	Date: 11/8/10 Time: 1340		24 Hour Rush
Relinquished By:	Received By:	X	2 - 3 Day Rush
Date: Time:	Date: Time:		5 Day Rush
Relinquished By:	Received By:		10 Day Standard
Date: Time:	Date: Time:		

Samples received at ~~18~~ 12 °C DV

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

November 22, 2010

Jeremy Porter, Project Manager
Aspect Consulting
401 2nd Ave S, Suite 201
Seattle, WA 98104

Dear Mr. Porter:

Included are the results from the testing of material submitted on November 8, 2010 from the Former Bremerton MGP Site, F&BI 011097 project. There are 36 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: data@aspectconsulting.com
ASP1122R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 8, 2010 by Friedman & Bruya, Inc. from the Aspect Consulting Former Bremerton MGP Site, F&BI 011097 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting
011097-01	SED-40-110610
011097-02	PIPE-40-110610
011097-03	SED-80-110610
011097-04	PIPE 80-110610
011097-05	SED-110-110610

The samples were sent to Fremont for total organic carbon analysis. Review of the enclosed report indicates that all quality assurance were acceptable.

Several 8260C compounds failed the acceptance criteria for several compounds. The data were flagged accordingly.

Methylene chloride was detected in sample SED-110-110610. The data were flagged as likely due to laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Former Bremerton MGP Site, F&BI 011097
Date Extracted: 11/09/10
Date Analyzed: 11/10/10

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
SED-40-110610 011097-01	9.6	93
PIPE-40-110610 011097-02	35	93
SED-80-110610 011097-03	11	86
PIPE 80-110610 011097-04 1/20	530	75
SED-110-110610 011097-05	<2	77
Method Blank 00-1834 MB	<2	94

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Former Bremerton MGP Site, F&BI 011097
Date Extracted: 11/10/10
Date Analyzed: 11/10/10 and 11/11/10

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
SED-40-110610 011097-01	4,500	3,500	141
PIPE-40-110610 011097-02	190	280	110
SED-80-110610 011097-03	110	<250	109
PIPE 80-110610 011097-04	8,800	7,300	129
SED-110-110610 011097-05	120 x	<250	107
Method Blank 00-1841 MB	<50	<250	112

Analysis For Total Metals By EPA Method 200.8

Cilent ID:	PIPE-40-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-02
Date Analyzed:	11/09/10	Data File:	011097-02.022
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	84	60	125
Holmium	90	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	16.9
Arsenic	4.78
Selenium	<1
Silver	<1
Cadmium	<1
Barium	23.4
Lead	41.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	PIPE 80-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-04
Date Analyzed:	11/09/10	Data File:	011097-04.023
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	82	60	125
Holmium	90	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	28.5
Arsenic	7.17
Selenium	<1
Silver	<1
Cadmium	1.06
Barium	37.7
Lead	102

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Aspect Consulting
Date Received:	NA	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/08/10	Lab ID:	10-639 mb
Date Analyzed:	11/09/10	Data File:	10-639 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	89	60	125
Indium	86	60	125
Holmium	89	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Former Bremerton MGP Site, F&BI 011097
Date Extracted: 11/09/10
Date Analyzed: 11/09/10

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Total Mercury
PIPE-40-110610 011097-02	<0.2
PIPE 80-110610 011097-04	0.6
Method Blank	<0.2

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SED-40-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-01
Date Analyzed:	11/10/10	Data File:	110874.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	42	152
Toluene-d8	99	36	149
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 ca	1,3-Dichloropropane	<0.05
Chloromethane	<0.5 ca	Tetrachloroethene	<0.025
Vinyl chloride	<0.05 ca	Dibromochloromethane	<0.05
Bromomethane	<0.5 ca	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5 ca	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5 ca	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05 ca	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	0.17
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	0.28
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	0.27
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	PIPE-40-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-02 1/10
Date Analyzed:	11/18/10	Data File:	111812.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	42	152
Toluene-d8	98	36	149
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<5	1,3-Dichloropropane	<0.5
Chloromethane	<5	Tetrachloroethene	<0.25
Vinyl chloride	<0.5	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.5
Chloroethane	<5 ca	Chlorobenzene	<0.5
Trichlorofluoromethane	<5 ca	Ethylbenzene	<0.5
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.5
1,1-Dichloroethene	<0.5 ca	m,p-Xylene	2.0
Methylene chloride	<5	o-Xylene	0.84
Methyl t-butyl ether (MTBE)	<0.5	Styrene	<0.5
trans-1,2-Dichloroethene	<0.5	Isopropylbenzene	<0.5
1,1-Dichloroethane	<0.5	Bromoform	<0.5
2,2-Dichloropropane	<0.5	n-Propylbenzene	<0.5
cis-1,2-Dichloroethene	<0.5	Bromobenzene	<0.5
Chloroform	<0.5	1,3,5-Trimethylbenzene	0.90
2-Butanone (MEK)	<5	1,1,2,2-Tetrachloroethane	<0.5
1,2-Dichloroethane (EDC)	<0.5	1,2,3-Trichloropropane	<0.5
1,1,1-Trichloroethane	<0.5	2-Chlorotoluene	<0.5
1,1-Dichloropropene	<0.5	4-Chlorotoluene	<0.5
Carbon tetrachloride	<0.5	tert-Butylbenzene	<0.5
Benzene	<0.3	1,2,4-Trimethylbenzene	2.4
Trichloroethene	<0.3	sec-Butylbenzene	<0.5
1,2-Dichloropropane	<0.5	p-Isopropyltoluene	<0.5
Bromodichloromethane	<0.5	1,3-Dichlorobenzene	<0.5
Dibromomethane	<0.5	1,4-Dichlorobenzene	<0.5
4-Methyl-2-pentanone	<5	1,2-Dichlorobenzene	<0.5
cis-1,3-Dichloropropene	<0.5	1,2-Dibromo-3-chloropropane	<5
Toluene	<0.5	1,2,4-Trichlorobenzene	<2.5
trans-1,3-Dichloropropene	<0.5	Hexachlorobutadiene	<2.5
1,1,2-Trichloroethane	<0.5	Naphthalene	57
2-Hexanone	<5	1,2,3-Trichlorobenzene	<2.5

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	PIPE-40-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-02
Date Analyzed:	11/10/10	Data File:	110875.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	42	152
Toluene-d8	101	36	149
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 ca	1,3-Dichloropropane	<0.05
Chloromethane	<0.5 ca	Tetrachloroethene	<0.025
Vinyl chloride	<0.05 ca	Dibromochloromethane	<0.05
Bromomethane	<0.5 ca	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5 ca	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5 ca	Ethylbenzene	0.24
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05 ca	m,p-Xylene	1.5
Methylene chloride	<0.5	o-Xylene	0.57
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	0.055
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	0.092
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	0.60
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	1.4
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	0.10
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	0.063	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	12 ve
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SED-80-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-03
Date Analyzed:	11/18/10	Data File:	111811.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	42	152
Toluene-d8	101	36	149
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5 ca	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5 ca	Ethylbenzene	3.1
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05 ca	m,p-Xylene	0.45
Methylene chloride	<0.5	o-Xylene	0.29
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	0.55
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	0.59
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	0.29
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	1.5	1,2,4-Trimethylbenzene	2.3
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	0.19
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	0.069	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	14 ve
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Cilent Sample ID:	PIPE 80-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-04
Date Analyzed:	11/10/10	Data File:	110877.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	42	152
Toluene-d8	101	36	149
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 ca	1,3-Dichloropropane	<0.05
Chloromethane	<0.5 ca	Tetrachloroethene	<0.025
Vinyl chloride	<0.05 ca	Dibromochloromethane	<0.05
Bromomethane	<0.5 ca	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5 ca	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5 ca	Ethylbenzene	3.0
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05 ca	m,p-Xylene	15
Methylene chloride	<0.5	o-Xylene	7.2
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	0.42
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	0.62
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	3.6
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	2.8	1,2,4-Trimethylbenzene	8.0 ve
Trichloroethene	<0.03	sec-Butylbenzene	0.14
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	0.50
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	6.4	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	27 ve
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	PIPE 80-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-04 1/100
Date Analyzed:	11/18/10	Data File:	111813.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	42	152
Toluene-d8	98	36	149
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<50	1,3-Dichloropropane	<5
Chloromethane	<50	Tetrachloroethene	<2.5
Vinyl chloride	<5	Dibromochloromethane	<5
Bromomethane	<50	1,2-Dibromoethane (EDB)	<5
Chloroethane	<50 ca	Chlorobenzene	<5
Trichlorofluoromethane	<50 ca	Ethylbenzene	<5
Acetone	<50	1,1,1,2-Tetrachloroethane	<5
1,1-Dichloroethene	<5 ca	m,p-Xylene	15
Methylene chloride	<50	o-Xylene	5.9
Methyl t-butyl ether (MTBE)	<5	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<5
cis-1,2-Dichloroethene	<5	Bromobenzene	<5
Chloroform	<5	1,3,5-Trimethylbenzene	<5
2-Butanone (MEK)	<50	1,1,2,2-Tetrachloroethane	<5
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<5
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<5
1,1-Dichloropropene	<5	4-Chlorotoluene	<5
Carbon tetrachloride	<5	tert-Butylbenzene	<5
Benzene	4.4	1,2,4-Trimethylbenzene	7.8
Trichloroethene	<3	sec-Butylbenzene	<5
1,2-Dichloropropane	<5	p-Isopropyltoluene	<5
Bromodichloromethane	<5	1,3-Dichlorobenzene	<5
Dibromomethane	<5	1,4-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<5
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<50
Toluene	6.1	1,2,4-Trichlorobenzene	<25
trans-1,3-Dichloropropene	<5	Hexachlorobutadiene	<25
1,1,2-Trichloroethane	<5	Naphthalene	320
2-Hexanone	<50	1,2,3-Trichlorobenzene	<25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	SED-110-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-05
Date Analyzed:	11/10/10	Data File:	111030.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	42	152
Toluene-d8	97	36	149
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 ca	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5 ca	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	0.74 lc	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	Not Applicable	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	001778 mb2
Date Analyzed:	11/09/10	Data File:	110854.D
Matrix:	Soil	Instrument:	GCMS5
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	42	152
Toluene-d8	100	36	149
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5 ca	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

Analysis For Semivolatile Compounds By EPA Method 8270D

Cilent Sample ID:	SED-40-110610	Cilent:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-01 1/100
Date Analyzed:	11/20/10	Data File:	111935.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	66	30	118
Phenol-d6	54	30	118
Nitrobenzene-d5	88	10	180
2-Fluorobiphenyl	81	40	130
2,4,6-Tribromophenol	48	16	116
Terphenyl-d14	81	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<30	3-Nitroaniline	<90
Bis(2-chloroethyl) ether	<3	Acenaphthene	80
2-Chlorophenol	<30	2,4-Dinitrophenol	<90
1,3-Dichlorobenzene	<3	Dibenzofuran	<3
1,4-Dichlorobenzene	<3	2,4-Dinitrotoluene	<3
1,2-Dichlorobenzene	<3	4-Nitrophenol	<30
Benzyl alcohol	<3	Diethyl phthalate	<3
Bis(2-chloroisopropyl) ether	<3	Fluorene	8.8
2-Methylphenol	<30	4-Chlorophenyl phenyl ether	<3
Hexachloroethane	<3	N-Nitrosodiphenylamine	<3
N-Nitroso-di-n-propylamine	<3	4-Nitroaniline	<90
3-Methylphenol + 4-Methylphenol	<60	4,6-Dinitro-2-methylphenol	<90
Nitrobenzene	<3	4-Bromophenyl phenyl ether	<3
Isophorone	<3	Hexachlorobenzene	<3
2-Nitrophenol	<30	Pentachlorophenol	<30
2,4-Dimethylphenol	<30	Phenanthrene	220
Benzoic acid	<150	Anthracene	85
Bis(2-chloroethoxy)methane	<3	Carbazole	<3
2,4-Dichlorophenol	<30	Di-n-butyl phthalate	<3
1,2,4-Trichlorobenzene	<3	Fluoranthene	170
Naphthalene	<3	Pyrene	230
Hexachlorobutadiene	<3	Benzyl butyl phthalate	<3
4-Chloroaniline	<300	Benz(a)anthracene	70
4-Chloro-3-methylphenol	<30	Chrysene	77
2-Methylnaphthalene	<3	Bis(2-ethylhexyl) phthalate	<30
Hexachlorocyclopentadiene	<9	Di-n-octyl phthalate	<3
2,4,6-Trichlorophenol	<30	Benzo(a)pyrene	68
2,4,5-Trichlorophenol	<30	Benzo(b)fluoranthene	61
2-Chloronaphthalene	<3	Benzo(k)fluoranthene	23
2-Nitroaniline	<3	Indeno(1,2,3-cd)pyrene	37
Dimethyl phthalate	<3	Dibenz(a,h)anthracene	8.4
Acenaphthylene	33	Benzo(g,h,i)perylene	52
2,6-Dinitrotoluene	<3		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Cilent Sample ID:	PIPE-40-110610	Cilent:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-02 1/10
Date Analyzed:	11/20/10	Data File:	111933.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	80	30	118
Phenol-d6	68	30	118
Nitrobenzene-d5	83	10	180
2-Fluorobiphenyl	86	40	130
2,4,6-Tribromophenol	60	16	116
Terphenyl-d14	86	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<3	3-Nitroaniline	<9
Bis(2-chloroethyl) ether	<0.3	Acenaphthene	0.50
2-Chlorophenol	<3	2,4-Dinitrophenol	<9
1,3-Dichlorobenzene	<0.3	Dibenzofuran	<0.3
1,4-Dichlorobenzene	<0.3	2,4-Dinitrotoluene	<0.3
1,2-Dichlorobenzene	<0.3	4-Nitrophenol	<3
Benzyl alcohol	<0.3	Diethyl phthalate	<0.3
Bis(2-chloroisopropyl) ether	<0.3	Fluorene	0.40
2-Methylphenol	<3	4-Chlorophenyl phenyl ether	<0.3
Hexachloroethane	<0.3	N-Nitrosodiphenylamine	<0.3
N-Nitroso-di-n-propylamine	<0.3	4-Nitroaniline	<9
3-Methylphenol + 4-Methylphenol	<6	4,6-Dinitro-2-methylphenol	<9
Nitrobenzene	<0.3	4-Bromophenyl phenyl ether	<0.3
Isophorone	<0.3	Hexachlorobenzene	<0.3
2-Nitrophenol	<3	Pentachlorophenol	<3
2,4-Dimethylphenol	<3	Phenanthrene	1.7
Benzoic acid	<15	Anthracene	0.65
Bis(2-chloroethoxy)methane	<0.3	Carbazole	<0.3
2,4-Dichlorophenol	<3	Di-n-butyl phthalate	<0.3
1,2,4-Trichlorobenzene	<0.3	Fluoranthene	3.7
Naphthalene	0.57	Pyrene	5.4
Hexachlorobutadiene	<0.3	Benzyl butyl phthalate	<0.3
4-Chloroaniline	<30	Benz(a)anthracene	1.7
4-Chloro-3-methylphenol	<3	Chrysene	1.6
2-Methylnaphthalene	0.82	Bis(2-ethylhexyl) phthalate	<3
Hexachlorocyclopentadiene	<0.9	Di-n-octyl phthalate	<0.3
2,4,6-Trichlorophenol	<3	Benzo(a)pyrene	2.1
2,4,5-Trichlorophenol	<3	Benzo(b)fluoranthene	2.1
2-Chloronaphthalene	<0.3	Benzo(k)fluoranthene	0.76
2-Nitroaniilne	<0.3	Indeno(1,2,3-cd)pyrene	1.3
Dimethyl phthalate	<0.3	Dibenz(a,h)anthracene	0.30
Acenaphthylene	0.91	Benzo(g,h,i)perylene	1.9
2,6-Dinitrotoluene	<0.3		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	SED-80-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-03 1/50
Date Analyzed:	11/20/10	Data Flie:	111932.D
Matrix:	Soli	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	75	30	118
Phenol-d6	64	30	118
Nitrobenzene-d5	88	10	180
2-Fluorobiphenyl	81	40	130
2,4,6-Tribromophenol	47	16	116
Terphenyl-d14	82	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<15	3-Nitroaniline	<45
Bis(2-chloroethyl) ether	<1.5	Acenaphthene	4.7
2-Chlorophenol	<15	2,4-Dinitrophenol	<45
1,3-Dichlorobenzene	<1.5	Dibenzofuran	<1.5
1,4-Dichlorobenzene	<1.5	2,4-Dinitrotoluene	<1.5
1,2-Dichlorobenzene	<1.5	4-Nitrophenol	<15
Benzyl alcohol	<1.5	Diethyl phthalate	<1.5
Bis(2-chloroisopropyl) ether	<1.5	Fluorene	1.6
2-Methylphenol	<15	4-Chlorophenyl phenyl ether	<1.5
Hexachloroethane	<1.5	N-Nitrosodiphenylamine	<1.5
N-Nitroso-di-n-propylamine	<1.5	4-Nitroaniline	<45
3-Methylphenol + 4-Methylphenol	<30	4,6-Dinitro-2-methylphenol	<45
Nitrobenzene	<1.5	4-Bromophenyl phenyl ether	<1.5
Isophorone	<1.5	Hexachlorobenzene	<1.5
2-Nitrophenol	<15	Pentachlorophenol	<15
2,4-Dimethylphenol	<15	Phenanthrene	6.9
Benzoic acid	<75	Anthracene	2.3
Bis(2-chloroethoxy)methane	<1.5	Carbazole	<1.5
2,4-Dichlorophenol	<15	Di-n-butyl phthalate	<1.5
1,2,4-Trichlorobenzene	<1.5	Fluoranthene	8.9
Naphthalene	3.9	Pyrene	13
Hexachlorobutadiene	<1.5	Benzyl butyl phthalate	<1.5
4-Chloroaniline	<150	Benz(a)anthracene	4.5
4-Chloro-3-methylphenol	<15	Chrysene	4.3
2-Methylnaphthalene	<1.5	Bis(2-ethylhexyl) phthalate	<15
Hexachlorocyclopentadiene	<4.5	Di-n-octyl phthalate	<1.5
2,4,6-Trichlorophenol	<15	Benzo(a)pyrene	4.1
2,4,5-Trichlorophenol	<15	Benzo(b)fluoranthene	4.6
2-Chloronaphthalene	<1.5	Benzo(k)fluoranthene	1.7
2-Nitroaniline	<1.5	Indeno(1,2,3-cd)pyrene	2.2
Dimethyl phthalate	<1.5	Dibenz(a,h)anthracene	<1.5
Acenaphthylene	<1.5	Benzo(g,h,i)perylene	3.5
2,6-Dinitrotoluene	<1.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	PIPE 80-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-04 1/200
Date Analyzed:	11/20/10	Data Flie:	111936.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	54	30	118
Phenol-d6	56	30	118
Nitrobenzene-d5	70	10	180
2-Fluorobiphenyl	96	40	130
2,4,6-Tribromophenol	40	16	116
Terphenyl-d14	106	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<60	3-Nitroanliine	<180
Bis(2-chloroethyl) ether	<6	Acenaphthene	88
2-Chlorophenol	<60	2,4-Dinitrophenol	<180
1,3-Dichlorobenzene	<6	Dibenzofuran	18
1,4-Dichlorobenzene	<6	2,4-Dinitrotoluene	<6
1,2-Dichlorobenzene	<6	4-Nitrophenol	<60
Benzyl alcohol	<6	Diethyl phthalate	<6
Bis(2-chloroisopropyl) ether	<6	Fluorene	120
2-Methylphenol	<60	4-Chlorophenyl phenyl ether	<6
Hexachloroethane	<6	N-Nitrosodiphenylamine	<6
N-Nitroso-di-n-propylamine	<6	4-Nitroaniline	<180
3-Methylphenol + 4-Methylphenol	<120	4,6-Dinitro-2-methylphenol	<180
Nitrobenzene	<6	4-Bromophenyl phenyl ether	<6
Isophorone	<6	Hexachlorobenzene	<6
2-Nitrophenol	<60	Pentachlorophenol	<60
2,4-Dimethylphenol	<60	Phenanthrene	440
Benzoic acid	<300	Anthracene	130
Bis(2-chloroethoxy)methane	<6	Carbazole	7.9
2,4-Dichlorophenol	<60	Di-n-butyl phthalate	<6
1,2,4-Trichlorobenzene	<6	Fluoranthene	300
Naphthalene	280	Pyrene	400
Hexachlorobutadiene	<6	Benzyl butyl phthalate	<6
4-Chloroaniline	<600	Benz(a)anthracene	120
4-Chloro-3-methylphenol	<60	Chrysene	130
2-Methylnaphthalene	300	Bis(2-ethylhexyl) phthalate	<60
Hexachlorocyclopentadiene	<18	Di-n-octyl phthalate	<6
2,4,6-Trichlorophenol	<60	Benzo(a)pyrene	110
2,4,5-Trichlorophenol	<60	Benzo(b)fluoranthene	100
2-Chloronaphthalene	<6	Benzo(k)fluoranthene	38
2-Nitroaniline	<6	Indeno(1,2,3-cd)pyrene	59
Dimethyl phthalate	<6	Dibenz(a,h)anthracene	13
Acenaphthylene	70	Benzo(g,h,i)perylene	84
2,6-Dinitrotoluene	<6		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	SED-110-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	011097-05 1/50
Date Analyzed:	11/20/10	Data Flie:	111934.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	77	30	118
Phenol-d6	61	30	118
Nitrobenzene-d5	78	10	180
2-Fluorobiphenyl	82	40	130
2,4,6-Tribromophenol	58	16	116
Terphenyl-d14	83	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<15	3-Nitroanliine	<45
Bis(2-chloroethyl) ether	<1.5	Acenaphthene	<1.5
2-Chlorophenol	<15	2,4-Dinitrophenol	<45
1,3-Dichlorobenzene	<1.5	Dibenzofuran	<1.5
1,4-Dichlorobenzene	<1.5	2,4-Dinitrotoluene	<1.5
1,2-Dichlorobenzene	<1.5	4-Nitrophenol	<15
Benzyl alcohol	<1.5	Diethyl phthalate	<1.5
Bis(2-chloroisopropyl) ether	<1.5	Fluorene	1.7
2-Methylphenol	<15	4-Chlorophenyl phenyl ether	<1.5
Hexachloroethane	<1.5	N-Nitrosodiphenylamine	<1.5
N-Nitroso-di-n-propylamine	<1.5	4-Nitroaniline	<45
3-Methylphenol + 4-Methylphenol	<30	4,6-Dinitro-2-methylphenol	<45
Nitrobenzene	<1.5	4-Bromophenyl phenyl ether	<1.5
Isophorone	<1.5	Hexachlorobenzene	<1.5
2-Nitrophenol	<15	Pentachlorophenol	<15
2,4-Dimethylphenol	<15	Phenanthrene	14
Benzoic acid	<75	Anthracene	5.4
Bis(2-chloroethoxy)methane	<1.5	Carbazole	<1.5
2,4-Dichlorophenol	<15	Di-n-butyl phthalate	<1.5
1,2,4-Trichlorobenzene	<1.5	Fluoranthene	53
Naphthalene	<1.5	Pyrene	73
Hexachlorobutadiene	<1.5	Benzyl butyl phthalate	<1.5
4-Chloroaniline	<150	Benz(a)anthracene	20
4-Chloro-3-methylphenol	<15	Chrysene	21
2-Methylnaphthalene	<1.5	Bis(2-ethylhexyl) phthalate	<15
Hexachlorocyclopentadiene	<4.5	Di-n-octyl phthalate	<1.5
2,4,6-Trichlorophenol	<15	Benzo(a)pyrene	17
2,4,5-Trichlorophenol	<15	Benzo(b)fluoranthene	19
2-Chloronaphthalene	<1.5	Benzo(k)fluoranthene	6.7
2-Nitroaniline	<1.5	Indeno(1,2,3-cd)pyrene	10
Dimethyl phthalate	<1.5	Dibenz(a,h)anthracene	2.2
Acenaphthylene	3.9	Benzo(g,h,i)perylene	16
2,6-Dinitrotoluene	<1.5		

Analysis For Semivolatile Compounds By EPA Method 8270D

Cilent Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	Not Appilcable	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/09/10	Lab ID:	00-1833 mb
Date Analyzed:	11/19/10	Data File:	111923.D
Matrix:	Soil	Instrument:	GCMS3
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	81	30	118
Phenol-d6	79	30	118
Nitrobenzene-d5	98	10	180
2-Fluorobiphenyl	100	40	130
2,4,6-Tribromophenol	68	16	116
Terphenyl-d14	118	30	144

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.3	3-Nitroaniline	<0.9
Bis(2-chloroethyl) ether	<0.03	Acenaphthene	<0.03
2-Chlorophenol	<0.3	2,4-Dinitrophenol	<0.9
1,3-Dichlorobenzene	<0.03	Dibenzofuran	<0.03
1,4-Dichlorobenzene	<0.03	2,4-Dinitrotoluene	<0.03
1,2-Dichlorobenzene	<0.03	4-Nitrophenol	<0.3
Benzyl alcohol	<0.03	Diethyl phthalate	<0.03
Bis(2-chloroisopropyl) ether	<0.03	Fluorene	<0.03
2-Methylphenol	<0.3	4-Chlorophenyl phenyl ether	<0.03
Hexachloroethane	<0.03	N-Nitrosodiphenylamine	<0.03
N-Nitroso-di-n-propylamine	<0.03	4-Nitroaniline	<0.9
3-Methylphenol + 4-Methylphenol	<0.6	4,6-Dinitro-2-methylphenol	<0.9
Nitrobenzene	<0.03	4-Bromophenyl phenyl ether	<0.03
Isophorone	<0.03	Hexachlorobenzene	<0.03
2-Nitrophenol	<0.3	Pentachlorophenol	<0.3
2,4-Dimethylphenol	<0.3	Phenanthrene	<0.03
Benzoic acid	<1.5	Anthracene	<0.03
Bis(2-chloroethoxy)methane	<0.03	Carbazole	<0.03
2,4-Dichlorophenol	<0.3	Di-n-butyl phthalate	<0.03
1,2,4-Trichlorobenzene	<0.03	Fluoranthene	<0.03
Naphthalene	<0.03	Pyrene	<0.03
Hexachlorobutadiene	<0.03	Benzyl butyl phthalate	<0.03
4-Chloroaniline	<3	Benz(a)anthracene	<0.03
4-Chloro-3-methylphenol	<0.3	Chrysene	<0.03
2-Methylnaphthalene	<0.03	Bis(2-ethylhexyl) phthalate	<0.3
Hexachlorocyclopentadiene	<0.09	Di-n-octyl phthalate	<0.03
2,4,6-Trichlorophenol	<0.3	Benzo(a)pyrene	<0.03
2,4,5-Trichlorophenol	<0.3	Benzo(b)fluoranthene	<0.03
2-Chloronaphthalene	<0.03	Benzo(k)fluoranthene	<0.03
2-Nitroaniline	<0.03	Indeno(1,2,3-cd)pyrene	<0.03
Dimethyl phthalate	<0.03	Dibenz(a,h)anthracene	<0.03
Acenaphthylene	<0.03	Benzo(g,h,i)perylene	<0.03
2,6-Dinitrotoluene	<0.03		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Cilent ID:	PIPE-40-110610	Cilent:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/10/10	Lab ID:	011097-02
Date Analyzed:	11/11/10	Data File:	011097-02.010
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	97	60	125
Holmium	95	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Lilnit
Chromium	<1	5.0
Arsenic	<1	5.0
Selenium	<1	1.0
Silver	<1	5.0
Cadmium	<1	1.0
Barium	<1	100
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	PIPE 80-110610	Client:	Aspect Consulting
Date Received:	11/08/10	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/10/10	Lab ID:	011097-04
Date Analyzed:	11/11/10	Data File:	011097-04.013
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	94	60	125
Indium	95	60	125
Holmium	93	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Chromium	<1	5.0
Arsenic	<1	5.0
Selenium	<1	1.0
Silver	<1	5.0
Cadmium	<1	1.0
Barium	<1	100
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	Method Blank	Client:	Aspect Consulting
Date Received:	NA	Project:	Bremerton MGP Site, F&BI 011097
Date Extracted:	11/10/10	Lab ID:	10-650 mb
Date Analyzed:	11/11/10	Data Flie:	10-650 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	93	60	125
Indium	94	60	125
Holmium	94	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Chromium	<1	5.0
Arsenic	<1	5.0
Selenium	<1	1.0
Silver	<1	5.0
Cadmium	<1	1.0
Barium	<1	100
Lead	<1	5.0

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Former Bremerton MGP Site, F&BI 011097
Date Extracted: 11/10/10
Date Analyzed: 11/11/10

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS IN ACCORDANCE WITH EPA METHOD 1631E AND 40 CFR PART 261

Results Reported as mg/L (ppm)

Sample ID Laboratory ID	Total Mercury
PIPE-40-110610 011097-02	<0.2
PIPE 80-110610 011097-04	<0.2
Method Blank	<0.2
TCLP Limit	*0.2*

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Former Bremerton MGP Site, F&BI 011097

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 011097-02 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	mg/kg (ppm)	35	29	19

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Former Bremerton MGP Site, F&BI 011097

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 011097-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	101	101	64-133	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	93	58-147

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Former Bremerton MGP Site, F&BI 011097

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 011072-27 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	9.79	101	98	51-132	3
Arsenic	mg/kg (ppm)	10	4.55	102 b	102 b	44-151	0 b
Selenium	mg/kg (ppm)	5	<1	89	86	52-128	3
Silver	mg/kg (ppm)	10	<1	100	100	69-125	0
Cadmium	mg/kg (ppm)	10	<1	102	100	83-120	2
Barium	mg/kg (ppm)	50	121	105 b	88 b	47-147	18 b
Lead	mg/kg (ppm)	20	17.0	94 b	94 b	65-126	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	106	79-125
Arsenic	mg/kg (ppm)	10	106	80-120
Selenium	mg/kg (ppm)	5	105	81-121
Silver	mg/kg (ppm)	10	103	84-117
Cadmium	mg/kg (ppm)	10	102	89-116
Barium	mg/kg (ppm)	50	103	88-113
Lead	mg/kg (ppm)	20	105	81-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 011072-27 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	mg/kg (ppm)	0.125	<0.2	154	152	45-162	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/kg (ppm)	0.125	71	63-144

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Project: Former Bremerton MGP Site, F&BI 011097

QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TCLP METALS IN ACCORDANCE WITH EPA METHOD 1631E AND 40 CFR PART 261

Laboratory Code: 011097-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Mercury	mg/L (ppm)	0.005	<0.2	97	101	48-160	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recover y LCS	Acceptance Criteria
Mercury	mg/L (ppm)	0.005	98	79-126

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 011085-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	21	10-171
Chloromethane	mg/kg (ppm)	2.5	<0.5	64	10-162
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	56	10-166
Bromomethane	mg/kg (ppm)	2.5	<0.5	53	10-165
Chloroethane	mg/kg (ppm)	2.5	<0.5	53	10-161
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	44	10-164
Acetone	mg/kg (ppm)	12.5	<0.5	92	20-155
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	55	10-168
Methylene chloride	mg/kg (ppm)	2.5	<0.5	65	21-149
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	82	39-139
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	72	20-150
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	82	35-138
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	61	17-150
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	87	38-139
Chloroform	mg/kg (ppm)	2.5	<0.05	81	45-133
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	93	24-153
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	80	44-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	81	33-144
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	85	31-141
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	78	31-143
Benzene	mg/kg (ppm)	2.5	<0.03	84	39-138
Trichloroethene	mg/kg (ppm)	2.5	<0.03	80	40-138
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	95	43-138
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	87	47-137
Dibromomethane	mg/kg (ppm)	2.5	<0.05	85	46-136
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	97	34-154
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	88	45-137
Toluene	mg/kg (ppm)	2.5	<0.05	87	38-139
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	85	44-140
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	88	38-148
2-Hexanone	mg/kg (ppm)	12.5	<0.5	105	37-150
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	90	47-133
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	84	37-137
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	91	52-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	92	44-139
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	87	47-131
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	88	46-135
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	90	49-138
m,p-Xylene	mg/kg (ppm)	5	<0.1	91	45-135
o-Xylene	mg/kg (ppm)	2.5	<0.05	95	44-137
Styrene	mg/kg (ppm)	2.5	<0.05	94	50-134
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	93	42-140
Bromoform	mg/kg (ppm)	2.5	<0.05	92	52-124
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	90	44-138
Bromobenzene	mg/kg (ppm)	2.5	<0.05	91	48-138
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	91	43-140
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	92	42-135
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	87	45-134
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	90	46-134
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	90	47-133
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	96	43-138
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	92	46-139
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	92	42-139
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	94	44-141
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	87	45-131
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	86	45-128
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	90	47-131
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	93	30-147
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	87	40-140
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	79	31-148
Naphthalene	mg/kg (ppm)	2.5	<0.05	100	12-168
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	88	11-172

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/22/10
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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	41	39	10-142	5
Chloromethane	mg/kg (ppm)	2.5	89	63	25-121	9
Vinyl chloride	mg/kg (ppm)	2.5	69	70	29-135	1
Bromomethane	mg/kg (ppm)	2.5	67	86	37-137	2
Chloroethane	mg/kg (ppm)	2.5	54	51	10-281	6
Trichlorofluoromethane	mg/kg (ppm)	2.5	55	56	17-187	2
Acetone	mg/kg (ppm)	12.5	83	81	10-151	2
1,1-Dichloroethene	mg/kg (ppm)	2.5	64	64	44-153	0
Methylene chloride	mg/kg (ppm)	2.5	78	75	42-144	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	88	85	62-124	3
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	84	85	60-125	1
1,1-Dichloroethane	mg/kg (ppm)	2.5	84	82	66-123	2
2,2-Dichloropropane	mg/kg (ppm)	2.5	89	92	63-138	3
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	95	93	72-118	2
Chloroform	mg/kg (ppm)	2.5	85	84	71-123	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	96	95	10-150	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	79	77	66-125	3
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	88	84	68-128	5
1,1-Dichloropropene	mg/kg (ppm)	2.5	93	92	71-123	1
Carbon tetrachloride	mg/kg (ppm)	2.5	85	86	64-138	1
Benzene	mg/kg (ppm)	2.5	91	90	69-122	1
Trichloroethene	mg/kg (ppm)	2.5	87	87	71-122	0
1,2-Dichloropropane	mg/kg (ppm)	2.5	95	93	71-120	2
Bromodichloromethane	mg/kg (ppm)	2.5	92	90	68-140	2
Dibromomethane	mg/kg (ppm)	2.5	90	88	72-121	2
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	101	98	10-150	3
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	101	98	74-128	3
Toluene	mg/kg (ppm)	2.5	93	93	72-122	0
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	95	94	70-131	1
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	94	92	70-122	2
2-Hexanone	mg/kg (ppm)	12.5	94	93	10-152	1
1,3-Dichloropropane	mg/kg (ppm)	2.5	93	92	72-121	1
Tetrachloroethene	mg/kg (ppm)	2.5	94	94	69-125	0
Dibromochloromethane	mg/kg (ppm)	2.5	98	96	68-130	2
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	96	94	72-121	2
Chlorobenzene	mg/kg (ppm)	2.5	92	91	89-125	1
Ethylbenzene	mg/kg (ppm)	2.5	92	91	72-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	97	95	69-133	2
m,p-Xylene	mg/kg (ppm)	5	98	95	72-131	1
o-Xylene	mg/kg (ppm)	2.5	101	101	71-129	0
Styrene	mg/kg (ppm)	2.5	99	98	73-132	1
Isopropylbenzene	mg/kg (ppm)	2.5	97	97	73-134	0
Bromoform	mg/kg (ppm)	2.5	98	98	68-129	2
n-Propylbenzene	mg/kg (ppm)	2.5	96	95	72-138	1
Bromobenzene	mg/kg (ppm)	2.5	96	95	73-125	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	97	96	72-132	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	97	95	67-116	2
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	91	88	67-123	3
2-Chlorotoluene	mg/kg (ppm)	2.5	96	94	72-130	2
4-Chlorotoluene	mg/kg (ppm)	2.5	95	95	73-129	0
tert-Butylbenzene	mg/kg (ppm)	2.5	102	102	71-130	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	98	97	70-132	1
sec-Butylbenzene	mg/kg (ppm)	2.5	100	99	71-134	1
p-Isopropyltoluene	mg/kg (ppm)	2.5	102	101	71-135	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	94	93	70-124	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	93	92	68-126	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	97	95	71-125	2
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	98	97	63-122	1
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	101	101	69-132	0
Hexachlorobutadiene	mg/kg (ppm)	2.5	95	96	68-122	1
Naphthalene	mg/kg (ppm)	2.5	109	106	60-125	3
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	101	100	68-121	1

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: 011084-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria
Phenol	mg/kg (ppm)	1.7	<0.3	87	86	10-129
Bis(2-chloroethyl) ether	mg/kg (ppm)	1.7	<0.03	98	96	50-150
2-Chlorophenol	mg/kg (ppm)	1.7	<0.3	88	87	47-108
1,3-Dichlorobenzene	mg/kg (ppm)	1.7	<0.03	87	86	50-150
1,4-Dichlorobenzene	mg/kg (ppm)	1.7	<0.03	82	82	39-110
1,2-Dichlorobenzene	mg/kg (ppm)	1.7	<0.03	85	84	50-150
Benzyl alcohol	mg/kg (ppm)	1.7	<0.03	90	90	50-150
Bis(2-chloroisopropyl) ether	mg/kg (ppm)	1.7	<0.03	85	85	50-150
2-Methylphenol	mg/kg (ppm)	1.7	<0.3	63	63	50-150
Hexachloroethane	mg/kg (ppm)	1.7	<0.03	89	87	50-150
N-Nitroso-di-n-propylamine	mg/kg (ppm)	1.7	<0.03	94	95	50-150
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	1.7	<0.6	103	103	50-150
Nitrobenzene	mg/kg (ppm)	1.7	<0.03	86	84	50-150
Isophorone	mg/kg (ppm)	1.7	<0.03	83	82	50-150
2-Nitrophenol	mg/kg (ppm)	1.7	<0.3	83	84	50-150
2,4-Dimethylphenol	mg/kg (ppm)	1.7	<0.3	81	80	50-150
Benzoic acid	mg/kg (ppm)	2.5	<3	88	85	50-150
Bis(2-chloroethoxy)methane	mg/kg (ppm)	1.7	<0.03	91	91	50-150
2,4-Dichlorophenol	mg/kg (ppm)	1.7	<0.3	94	97	50-150
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.7	<0.03	95	93	44-111
Naphthalene	mg/kg (ppm)	1.7	<0.03	82	79	29-120
Hexachlorobutadiene	mg/kg (ppm)	1.7	<0.03	90	89	50-150
4-Chloroaniline	mg/kg (ppm)	1.7	<3	52	55	50-150
4-Chloro-3-methylphenol	mg/kg (ppm)	1.7	<0.3	92	91	35-115
2-Methylnaphthalene	mg/kg (ppm)	1.7	<0.03	92	92	50-150
Hexachlorocyclopentadiene	mg/kg (ppm)	1.7	<0.09	64	60	50-150
2,4,6-Trichlorophenol	mg/kg (ppm)	1.7	<0.3	89	87	50-150
2,4,5-Trichlorophenol	mg/kg (ppm)	1.7	<0.3	93	91	50-150
2-Chloronaphthalene	mg/kg (ppm)	1.7	<0.03	95	93	50-150
2-Nitroaniline	mg/kg (ppm)	1.7	<0.03	85	84	50-150
Dimethyl phthalate	mg/kg (ppm)	1.7	<0.03	88	87	50-150
Acenaphthylene	mg/kg (ppm)	1.7	<0.03	89	87	50-150
2,6-Dinitrotoluene	mg/kg (ppm)	1.7	<0.03	82	93	50-150
3-Nitroaniline	mg/kg (ppm)	1.7	<0.9	51	60	50-150
Acenaphthene	mg/kg (ppm)	1.7	<0.03	92	90	60-106
2,4-Dinitrophenol	mg/kg (ppm)	1.7	<0.9	82	80	50-150
Dibenzofuran	mg/kg (ppm)	1.7	<0.03	91	89	50-150
2,4-Dinitrotoluene	mg/kg (ppm)	1.7	<0.03	92	90	47-126
4-Nitrophenol	mg/kg (ppm)	1.7	<0.3	95	97	10-134
Diethyl phthalate	mg/kg (ppm)	1.7	<0.03	90	88	50-150
Fluorene	mg/kg (ppm)	1.7	<0.03	91	89	50-150
4-Chlorophenyl phenyl ether	mg/kg (ppm)	1.7	<0.03	97	94	50-150
1,2-Diphenylhydrazine	mg/kg (ppm)	1.7	<0.03	91	89	50-150
N-Nitrosodiphenylamine	mg/kg (ppm)	1.7	<0.03	95	92	50-150
4-Nitroaniline	mg/kg (ppm)	1.7	<0.9	83	81	50-150
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	1.7	<0.9	92	93	50-150
4-Bromophenyl phenyl ether	mg/kg (ppm)	1.7	<0.03	92	89	50-150
Hexachlorobenzene	mg/kg (ppm)	1.7	<0.03	92	93	50-150
Pentachlorophenol	mg/kg (ppm)	1.7	<0.3	96	96	31-120
Phenanthrene	mg/kg (ppm)	1.7	<0.03	94	93	50-150
Anthracene	mg/kg (ppm)	1.7	<0.03	89	88	50-150
Carbazole	mg/kg (ppm)	1.7	<0.03	91	90	50-150
Di-n-butyl phthalate	mg/kg (ppm)	1.7	<0.03	93	91	50-150
Fluoranthene	mg/kg (ppm)	1.7	<0.03	94	92	50-150
Pyrene	mg/kg (ppm)	1.7	<0.03	88	88	45-119
Benzyl butyl phthalate	mg/kg (ppm)	1.7	<0.03	90	91	50-150
Benz(a)anthracene	mg/kg (ppm)	1.7	<0.03	88	87	50-150
Chrysene	mg/kg (ppm)	1.7	<0.03	88	88	50-150
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	1.7	<0.3	94	94	50-150
Di-n-octyl phthalate	mg/kg (ppm)	1.7	<0.03	100	94	50-150
Benzo(a)pyrene	mg/kg (ppm)	1.7	<0.03	88	85	28-126
Benzo(b)fluoranthene	mg/kg (ppm)	1.7	<0.03	87	84	50-150
Benzo(k)fluoranthene	mg/kg (ppm)	1.7	<0.03	105	98	50-150
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	1.7	<0.03	91	88	50-150
Dibenz(a,h)anthracene	mg/kg (ppm)	1.7	<0.03	67	62	50-150
Benzo(g,h,i)perylene	mg/kg (ppm)	1.7	<0.03	80	79	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/22/10
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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Phenol	mg/kg (ppm)	1.7	92	40-105
Bis(2-chloroethyl) ether	mg/kg (ppm)	1.7	84	32-144
2-Chlorophenol	mg/kg (ppm)	1.7	90	43-108
1,3-Dichlorobenzene	mg/kg (ppm)	1.7	93	52-116
1,4-Dichlorobenzene	mg/kg (ppm)	1.7	92	44-107
1,2-Dichlorobenzene	mg/kg (ppm)	1.7	94	54-113
Benzyl alcohol	mg/kg (ppm)	1.7	91	43-128
Bis(2-chloroisopropyl) ether	mg/kg (ppm)	1.7	92	51-115
2-Methylphenol	mg/kg (ppm)	1.7	83	49-102
Hexachloroethane	mg/kg (ppm)	1.7	99	48-117
N-Nitroso-di-n-propylamine	mg/kg (ppm)	1.7	96	38-118
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	1.7	104	70-130
Nitrobenzene	mg/kg (ppm)	1.7	86	50-117
Isophorone	mg/kg (ppm)	1.7	82	50-125
2-Nitrophenol	mg/kg (ppm)	1.7	83	53-104
2,4-Dimethylphenol	mg/kg (ppm)	1.7	73	30-103
Benzoic acid	mg/kg (ppm)	2.5	92	46-125
Bis(2-chloroethoxy)methane	mg/kg (ppm)	1.7	90	54-116
2,4-Dichlorophenol	mg/kg (ppm)	1.7	93	53-102
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.7	97	45-109
Naphthalene	mg/kg (ppm)	1.7	87	42-116
Hexachlorobutadiene	mg/kg (ppm)	1.7	93	53-110
4-Chloroaniline	mg/kg (ppm)	1.7	61	10-108
4-Chloro-3-methylphenol	mg/kg (ppm)	1.7	89	42-114
2-Methylnaphthalene	mg/kg (ppm)	1.7	93	39-139
Hexachlorocyclopentadiene	mg/kg (ppm)	1.7	100	35-121
2,4,6-Trichlorophenol	mg/kg (ppm)	1.7	93	35-120
2,4,5-Trichlorophenol	mg/kg (ppm)	1.7	101	51-111
2-Chloronaphthalene	mg/kg (ppm)	1.7	105	54-117
2-Nitroaniline	mg/kg (ppm)	1.7	90	53-118
Dimethyl phthalate	mg/kg (ppm)	1.7	93	48-123
Acenaphthylene	mg/kg (ppm)	1.7	98	52-118
2,6-Dinitrotoluene	mg/kg (ppm)	1.7	90	48-120
3-Nitroaniline	mg/kg (ppm)	1.7	61	11-93
Acenaphthene	mg/kg (ppm)	1.7	98	55-105
2,4-Dinitrophenol	mg/kg (ppm)	1.7	85	52-128
Dibenzofuran	mg/kg (ppm)	1.7	100	40-136
2,4-Dinitrotoluene	mg/kg (ppm)	1.7	88	43-115
4-Nitrophenol	mg/kg (ppm)	1.7	84	34-125
Diethyl phthalate	mg/kg (ppm)	1.7	95	51-121
Fluorene	mg/kg (ppm)	1.7	98	50-124
4-Chlorophenyl phenyl ether	mg/kg (ppm)	1.7	102	53-121
N-Nitrosodiphenylamine	mg/kg (ppm)	1.7	104	26-118
4-Nitroaniline	mg/kg (ppm)	1.7	81	19-178
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	1.7	94	38-135
4-Bromophenyl phenyl ether	mg/kg (ppm)	1.7	99	52-115
Hexachlorobenzene	mg/kg (ppm)	1.7	99	40-119
Pentachlorophenol	mg/kg (ppm)	1.7	98	31-125
Phenanthrene	mg/kg (ppm)	1.7	103	48-121
Anthracene	mg/kg (ppm)	1.7	101	49-117
Carbazole	mg/kg (ppm)	1.7	97	31-164
Di-n-butyl phthalate	mg/kg (ppm)	1.7	107	52-118
Fluoranthene	mg/kg (ppm)	1.7	101	51-116
Pyrene	mg/kg (ppm)	1.7	98	39-113
Benzyl butyl phthalate	mg/kg (ppm)	1.7	100	37-135
Benz(a)anthracene	mg/kg (ppm)	1.7	90	48-117
Chrysene	mg/kg (ppm)	1.7	92	42-123
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	1.7	108	55-117
Di-n-octyl phthalate	mg/kg (ppm)	1.7	118	50-139
Benzo(a)pyrene	mg/kg (ppm)	1.7	97	44-113
Benzo(b)fluoranthene	mg/kg (ppm)	1.7	92	39-118
Benzo(k)fluoranthene	mg/kg (ppm)	1.7	118	39-154
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	1.7	92	39-136
Dibenz(a,h)anthracene	mg/kg (ppm)	1.7	61	42-133
Benzo(g,h,i)perylene	mg/kg (ppm)	1.7	74	42-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/22/10
Date Received: 11/08/10
Project: Former Bremerton MGP Site, F&BI 011097

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS USING EPA METHOD 200.8 AND 40 CFR PART 261

Laboratory Code: 011097-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/L (ppm)	2.0	<1	98	98	50-150	0
Arsenic	mg/L (ppm)	1.0	<1	102	100	50-150	2
Selenium	mg/L (ppm)	0.5	<1	103	104	50-150	1
Silver	mg/L (ppm)	0.5	<1	93	96	50-150	3
Cadmium	mg/L (ppm)	0.5	<1	101	99	50-150	2
Barium	mg/L (ppm)	5.0	<1	100	100	50-150	0
Lead	mg/L (ppm)	1.0	<1	101	101	50-150	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/L (ppm)	2.0	97	70-130
Arsenic	mg/L (ppm)	1.0	103	70-130
Selenium	mg/L (ppm)	0.5	103	70-130
Silver	mg/L (ppm)	0.5	98	70-130
Cadmium	mg/L (ppm)	0.5	100	70-130
Barium	mg/L (ppm)	5.0	99	70-130
Lead	mg/L (ppm)	1.0	94	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting hmit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probabihty.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection hmits may be raised due to dilution.

ds - The sample was diluted. Detection hmits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and hmits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control llmits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control hmits. The reported concentration should be considered an estimate.

Ic - The presence of the compound indicated is hkely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not apphcable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the vahd instrument cahbration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

2930 Westlake Ave N Suite 100
Seattle, WA 98109
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman and Bruya, Inc.
Attn: Michael Erdahl
3012 16th Ave W.
Seattle, WA 98119

RE: 011097
Fremont Project No: CHM101109-7

November 11th, 2010

Michael:

Enclosed are the analytical results for the ***011097*** soil samples submitted to Fremont Analytical on November 9th, 2010.

Examination of these samples was conducted for the presence of the following:

- ***Total Organic Carbon by EPA Method 9060A***

This application was performed under Washington State Department of Ecology accreditation parameters. All appropriate Quality Assurance / Quality Control method parameters have been applied.

Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical!

Sincerely,

M Clements

Michelle Clements
Lab Manager / Sr. Chemist

mclements@fremontanalytical.com

2930 Westlake Ave. N., Suite 100
Seattle, WA 98109

T: 206.352.3790
F: 206.352.7178
email: info@fremontanalytical.com

Total Organic Carbon by EPA Method 9060A

Project: 011097
Client: Friedman & Bruya
Client Project #: A-708
Lab Project #: CHM101109-7

EPA 9060A *(Percent Organic Carbon by Weight)*	**MRL**	**Method Blank**	**LCS**
Date Analyzed		11/10/10	11/10/10
Matrix			
Total Organic Carbon	0.1	nd	87.5%

"nd" Indicates no detection at the listed reporting limits
"int" Indicates that interference prevents determination
"J" Indicates estimated value
"MRL" Indicates Method Reporting Limit
"LCS" Indicates Laboratory Control Sample
"MS" Indicates Matrix Spike
"MSD" Indicates Matrix Spike Duplicate
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%
Acceptable Recovery Limits:
LCS, LCSD, MS, MSD: 65% to 135%
Spike Concentration = 2.45 % by Weight (gm)

2930 Westlake Ave. N., Suite 100
Seattle, WA 98109

T: 206.352.3790
F: 206.352.7178
email: info@fremontanalytical.com

Total Organic Carbon by EPA Method 9060A

Project: 011097
Client: Friedman & Bruya
Client Project #: A-708
Lab Project #: CHM101109-7

EPA 9060A *(Percent Organic Carbon by Weight)*	**MRL**	**SED-40-110610**	**PIPE-40-110610**	Duplicate **PIPE-40-110610**	**RPD %**
Date Analyzed		11/10/10	11/10/10	11/10/10	
Matrix		Soil	Soil	Soil	
Total Organic Carbon	0.1	**0.830**	**0.319**	**0.331**	4%

"nd" Indicates no detection at the listed reporting limits
"int" Indicates that interference prevents determination
"J" Indicates estimated value
"MRL" Indicates Method Reporting Limit
"LCS" Indicates Laboratory Control Sample
"MS" Indicates Matrix Spike
"MSD" Indicates Matrix Spike Duplicate
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%
Acceptable Recovery Limits:
LCS, LCSD, MS, MSD: 65% to 135%
Spike Concentration = 2.45 % by Weight (gm)

2930 Westlake Ave. N., Suite 100
Seattle, WA 98109

T: 206.352.3790
F: 206.352.7178
email: info@fremontanalytical.com

Total Organic Carbon by EPA Method 9060A

Project: 011097
Client: Friedman & Bruya
Client Project #: A-708
Lab Project #: CHM101109-7

EPA 9060A *(Percent Organic Carbon by Weight)*	**MRL**	**SED-80-110610**	**PIPE-80-110610**	**SED-110-110710**
Date Analyzed		11/10/10	11/10/10	11/10/10
Matrix		Soil	Soil	Soil
Total Organic Carbon	0.1	**4.24**	**2.05**	**1.84**

"nd" Indicates no detection at the listed reporting limits
"int" Indicates that interference prevents determination
"J" Indicates estimated value
"MRL" Indicates Method Reporting Limit
"LCS" Indicates Laboratory Control Sample
"MS" Indicates Matrix Spike
"MSD" Indicates Matrix Spike Duplicate
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%
Acceptable Recovery Limits:
LCS, LCSD, MS, MSD: 65% to 135%
Spike Concentration = 2.45 % by Weight (gm)

Fremont Analytical

2930 Westlake Ave. N., Suite 100
Seattle, WA 98109

T: 206.352.3790
F: 206.352.7178
email: info@fremontanalytical.com

Total Organic Carbon by EPA Method 9060A

Project: 011097
Client: Friedman & Bruya
Client Project #: A-708
Lab Project #: CHM101109-7

		MS	MSD	
EPA 9060A *(Percent Organic Carbon by Weight)*	**MRL**	**PIPE-40-110610**	**PIPE-40-110610**	**RPD %**
Date Analyzed		11/10/10	11/10/10	
Matrix		Soil	Soil	
Total Organic Carbon	0.1	67.3%	85.1%	23%

"nd" Indicates no detection at the listed reporting limits
"int" Indicates that interference prevents determination
"J" Indicates estimated value
"MRL" Indicates Method Reporting Limit
"LCS" Indicates Laboratory Control Sample
"MS" Indicates Matrix Spike
"MSD" Indicates Matrix Spike Duplicate
"RPD" Indicates Relative Percent Difference

Acceptable RPD is determined to be less than 30%
Acceptable Recovery Limits:
LCS, LCSD, MS, MSD: 65% to 135%
Spike Concentration = 2.45 % by Weight (gm)

SUBCONTRACT SAMPLE CHAIN OF COUNTODY

CHM101109-7

Page # 1 of 1

Send Report To: Michael Erdahl

Company: Friedman and Bruya, Inc.

Address: 3012 16th Ave W

City, State, ZIP: Seattle, WA 98119

SUBCONTRACTER	
Fremont	
PROJECT NAME/NO.	PO #
011097	A-708
REMARKS	

TURNAROUND TIME

Standard (2 Weeks)

X RUSH 11/11/10

Rush charges authorized by: MS

SAMPLE DISPOSAL

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Oil and Grease	EPH	VPH	Nitrate	Sulfate	Alkalinity	TOC				Notes
SED-40-110610		11/06/07		S								X				
PIPE-40-110610												X				
SED-80-110610												X				
PIPE-80-110610												X				
SED-110-110710		11/07/07										X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	11/9/10	9:30AM
Received by:	Sean Galloway	Fremont Analytical	11/9/10	2:45pm
Relinquished by:				
Received by:				

C[illegible]097

CHAIN OF CUSTODY ME 11-08-10

A[illegible]5

Aspect Consulting, LLC
179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370
(206) 780-9438 FAX

Project #

Project Name: Former Bremerton MGP Site

WSG = Composition Water; Soil; or Gas
G/C = Grab or Composite
NUM = Number of Containers

Bill To:

Sampled By:

Requested Laboratory Analysis

Sample #	Date	Time	WSG	G/C	Location	NUM	8270	8260	NWTPH-GX	NWTPH-DX	HCID	RCRA 8 MTLS	TCLP MTLS	TOC			Remarks	Lab ID
SED-40-110610	11/06/10	00:00	S	G		4	X	X	X	X	X			X			HOLD ANY	01
PIPE-40-110610	11/06/10	00:45	S	G		4	X	X	X	X	X	X	X	X			Remaining	02
SED-80-110610	11/06/10	23:30	S	G		3	X	X	X	X	X			X			Samples	03
PIPE 80-110610	11/06/10	23:45	S	G		3	X	X	X	X	X	X	X	X				04
SED-110-110710	11/07/10	00:20	S	G		3	X	X	X	X	X			X				05

Relinquished By: [signature]	Received By: [signature]		8 Hour Rush
Date: 11/8/10 Time: 1340	Date: 11/8/10 Time: 1340		24 Hour Rush
Relinquished By:	Received By:	X	2 - 3 Day Rush
Date: Time:	Date: Time:		5 Day Rush
Relinquished By:	Received By:		10 Day Standard
Date: Time:	Date: Time:		

Samples received at 12 °C

Appendix K

APPENDIX K
WASTE HANDLING FACILITY RECEIPT DOCUMENTATION

1108226

RABANCO REGIONAL DISPOSAL
P.O. BOX 333
Roosevelt, WA 99356
(509) 384-5641

014755 - 0054
Clearcreek Contractors Inc.
Clearcreek Contractors Inc.

Contract# LW-10401

SITE 3	TICKET 443873	GRID 000000	
GH00036 GAIL H		WEIGHMASTER	
DATE IN 10 November 2010		TIME IN 7:20 am	
DATE OUT 10 November 2010		TIME OUT 8:08 am	
VEHICLE 0353		ROLL OFF TOLU4694795	
REFERENCE TOLU4694795	ORIGIN Seattle		

1 Gross Weight 98,060.00 LB
Tare Weight 47,640.00 LB
Net Weight 50,420.00 LB 25.21 TN

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
25.21	TN	66 CA6J Cont Soil				
	11/08/10	Inbound - RAIL TICKET DTTX456315 Seattle 20 - 48 Ft				

203665
0.00 YD

NET AMOUNT

TENDERED

CHANGE

CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE

RS-F04-

RABANCO REGIONAL DISPOSAL
P[illegible]. BOX 338
Roosevelt, WA 99356
(509) 384-5641

014755 - 0054
Clearcreek Contractors Inc.
Clearcreek Contractors Inc.

Contract: LW-10401

SITE	TICKET	GRID
3	451535	000000

WEIGHMASTER	
VR00020 VICKY R	
DATE IN	**TIME IN**
17 December 2010	9:39 am
DATE OUT	**TIME OUT**
17 December 2010	9:57 am
VEHICLE	**ROLL OFF**
7328	TOLU468514
REFERENCE	**ORIGIN**
TOLU468514	Seattle

1 Gross Weight 67,480.00 LB
Tare Weight 46,220.00 LB
Net Weight 21,260.00 LB 10.63 TN

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
10.63	TN	66 LA61 Cont Soil				
	12/14/10	Inbound - RAIL TICKET BNSF231080 Seattle 20 - 48 Ft				

203456
0.00 YD

NET AMOUNT

TENDERED

CHANGE

CHECK NO.

REPUBLIC SERVICES

REV 11/09

SIGNATURE ______

RS-F

EMERALD SERVICES INC
www.emeraldnw.com

7343 E. MARGINAL WAY SOUTH
SEATTLE, WASHINGTON 98108
PH. (206) 832-3000
FAX (206) 832-3030
24 HOUR EMERGENCY PHONE: 1-888-832-3008

55447

BILL OF LADING AND GALLONAGE TICKET

SHIPPER/GENERATOR Cascade Natural Gas	CONTACT	JOB # 30-65848
ADDRESS 1725 Pennsylvania Ave	PHONE#	LOAD # 2
CITY STATE, ZIP Bremerton, Wa		DATE 13Dec10
CARRIER E.F.S	PHONE# 206-832-302	DOCUMENT # 55417
CONSIGNEE E.R.I	CONTACT Roger 3F Frank	TRUCK # 788
ADDRESS 1500 Airport Way South	PHONE#	PRODUCT TYPE L
CITY, STATE, ZIP Seattle, Wa		EST GALLONS 48"

HM	ITEM #	U.S. DOT DESCRIPTION	#	TYPE	QTY.
	A	Non Regulated Material By DOT	1	TT	2368
	B				
	C				
	D				

A. WPG # ______ DISP. CODE: 60707 C. WPG # ______ DISP. CODE: ______
B. WPG # ______ DISP. CODE: ______ D. WPG # ______ DISP. CODE: ______

DISPOSAL

DUMP DELAY TIME ______

WASH OUT: YES ( ) NO ( ) TIME IN ______ TIME OUT ______

E. WATER ______ GALLONS LOCATION ______ TEST ______ DISP. CODE ______

F. SOLIDS ______ GALLONS LOCATION ______ TEST ______ DISP. CODE ______

______ % SUSPENDED SOLIDS BY CENTRIFUGE + ______ GALS SEDIMENT

G. OIL/DIESEL/GAS ______ GALLONS LOCATION ______ TEST ______ DISP CODE ______

HOC'S ______ PCB'S ______ B.S.&W. ______ API ______ LAB: Y / N

210138

Shipper's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway, vessel and rail according to applicable international and national government regulations and this material is not regulated as a hazardous waste in accordance with WAC 173-303, 40 CFR. Part 261 or 40 CFR Part 761.

X Andrew H[illegible] X [signature] DATE: 13Dec10
SHIPPER (PRINT NAME) SIGNATURE

X Carl A. Kittrell X Carl A. Kittrell DATE: 13Dec10
CARRIER - DRIVER 1 (PRINT NAME) SIGNATURE

X ______ X ______ DATE: ______
CARRIER - DRIVER 2 (PRINT NAME) SIGNATURE

X ______ X ______ DATE: ______
CONSIGNEE (PRINT NAME) SIGNATURE

G-2

CUSTOMER

210238

58502

EMERALD SERVICES INC

www.emeraldnw.com

7343 E. MARGINAL WAY SOUTH
SEATTLE, WASHINGTON 98108
PH. (206) 832-3000
FAX (206) 832-3030
24 HOUR EMERGENCY PHONE: 1-888-832-3008

BILL OF LADING AND GALLONAGE TICKET

SHIPPER/GENERATOR Cascade Natural Gas	CONTACT		JOB # 30-65848
ADDRESS 1725 Pennsylvania Ave	PHONE#		LOAD # 01
CITY, STATE, ZIP [illegible], WA.			DATE 12/[illegible]
CARRIER Emerald Field Services	PHONE# 206-832-3052		DOCUMENT # 58502
CONSIGNEE Emerald Recycling	CONTACT Frank & Roger		TRUCK # 788
ADDRESS 1500 Airport Way S	PHONE#		PRODUCT TYPE L
CITY, STATE, ZIP Seattle, WA.			EST GALLONS 68"

HM	ITEM #	U.S. DOT DESCRIPTION	#	TYPE	QTY.
	A	Non-Regulated Material, Not DOT	1	TT	3007
	B				
	C				
	D				

A WPQ # ______ DISP CODE: GCC707 C. WPQ # ______ DISP. CODE: ______

B. WPQ # ______ DISP CODE: ______ D. WPQ # ______ DISP. CODE: ______

DISPOSAL

DUMP DELAY TIME ______

WASH OUT: YES ( ) NO ( ) TIME IN ______ TIME OUT ______

E. WATER ______ GALLONS LOCATION ______ TEST ______ DISR CODE ______

F. SOUDS ______ GALLONS LOCATION ______ TEST ______ DISR CODE ______

______ % SUSPENDED SOUDS BY CENTRIFUGE + ______ GALS SEDIMENT

G. OIL/DIESEL/GAS ______ GALLONS LOCATION ______ TEST ______ DISR CODE ______

HOC'S ______ PCB'S ______ B.S.&W. ______ API ______ LAB: Y / N

Shipper's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway, vessel and rail according to applicable international and national government regulations and this material is not regulated as a hazardous waste In accordance with WAC 173-303, 40 CFR. Part 261 or 40 CFR Part 761.

X [signature] SHIPPER (PRINT NAME) X [signature] SIGNATURE DATE: 13Dec10

X Carl A. Kittrell CARRIER - DRIVER 1 (PRINT NAME) X [signature] SIGNATURE DATE: 13Dec10

X ______ CARRIER - DRIVER 2 (PRINT NAME) X ______ SIGNATURE DATE: ______

X ______ CONSIGNEE (PRINT NAME) X ______ SIGNATURE DATE: ______

G-2

CUSTOMER

Appendix L

APPENDIX L
POST-COMPLETION INSPECTION REPORTS

November 9, 2010
November 12, 2010
November 16, 2010
November 19, 2010
November 27, 2010
November 28, 2010
December 1, 2010
December 4, 2010
December 7, 2010
December 21, 2010
January 2, 2011
January 6, 2011
January 14, 2011

Aspect CONSULTING

DAILY REPORT

179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

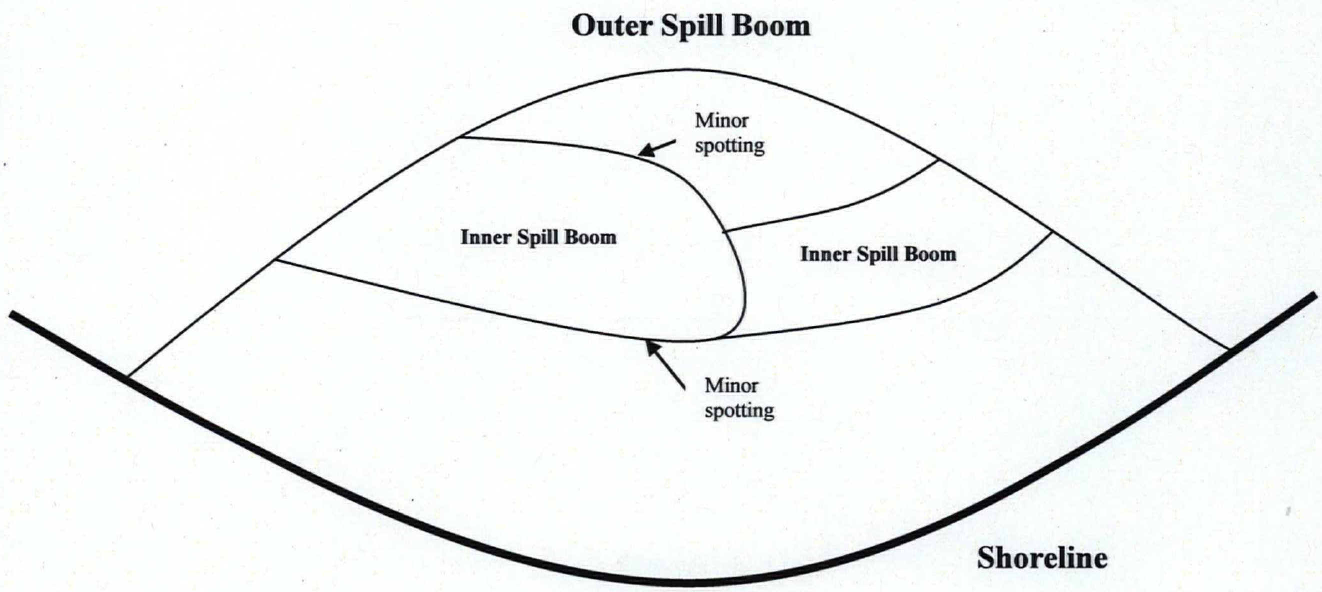
DATE: NOVEMBER 9, 2010	**PROJECT NO.** 080239	**WEATHER:** MOSTLY CLEAR 40'S
PROJECT NAME: Former Bremerton M G P		**CLIENT:** CASCADE NATURAL GAS
EQUIPMENT USED: NONE		**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site during low tide to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. A -2.5 low tide took place at 00:26 on Tuesday, November 9, 2010, so Jeremy Shaha arrived at the site at 00:00. Visibility was fair, with mostly clear skies and little wind.

No visible sheen or free-product was observed in the backfilled materials and there was no detectable hydrocarbon odor. The spill boom configuration had been modified to include a large outer ring, anchored to the shoreline on both ends, with two smaller inner rings in the vicinity of the former pipe outfall (see below diagram). Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition and did not appear to be water-logged, so that they still float. The spill booms are slightly, to moderately soiled in certain areas, but no significant product was present with the exception of some minor spotting on the inner spill boom (see below diagram)

Aspect left the site at approximately 00:45.



COPIES TO: File, Anchor QEA	**Aspect Consulting PROJECT MANAGER:** Jeremy Porter, PE, Associate Remediation Engineer
	Page 1 of 1 **FIELD REP.:** Bob Hanford, LG Senior Geologist

Aspect CONSULTING

179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DAILY REPORT

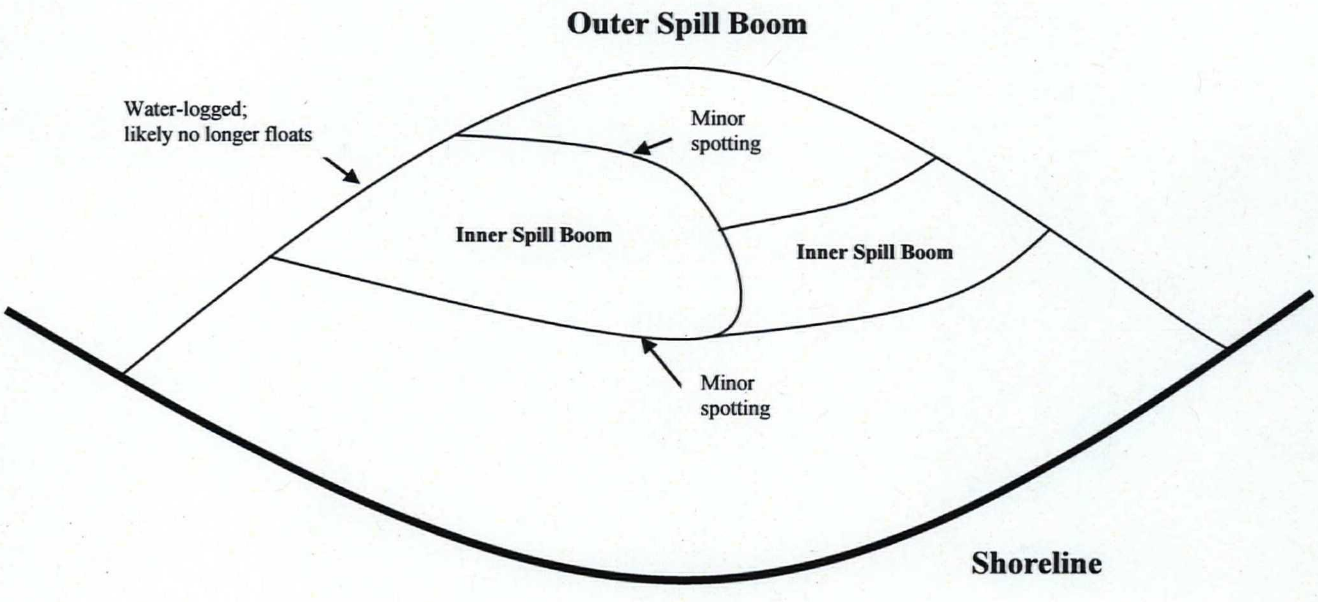
DATE: NOVEMBER 12, 2010	**PROJECT NO.** 080239	**WEATHER:** PARTLY CLOUDY 40'S
PROJECT NAME: Former Bremerton M G P		**CLIENT:** CASCADE NATURAL GAS
EQUIPMENT USED: NONE		**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site during low tide to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. A 0.3 low tide took place at 02:45 on Friday, November 12, 2010, so Jeremy Shaha arrived at the site at 02:30. Visibility was fair, with partly cloudy skies and little wind.

No visible sheen or free-product was observed in the backfilled materials and there was no detectable hydrocarbon odor. Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition; however, the entire western edge of the outer spill boom (see below diagram) appeared to be water-logged and likely no longer floats. The remainder of the spill booms did not appear to be water-logged and likely still float. The spill booms are slightly, to moderately soiled in certain areas, but no significant product was present with the exception of previously detected minor spotting on the inner spill boom (see below diagram)

Aspect left the site at approximately 03:00.



COPIES TO: File, Anchor QEA	**Aspect Consulting PROJECT MANAGER:** Jeremy Porter, PE, Associate Remediation Engineer
	Page 1 of 1 **FIELD REP.:** JMS, LHG Project Hydrogeologist

DAILY REPORT

179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

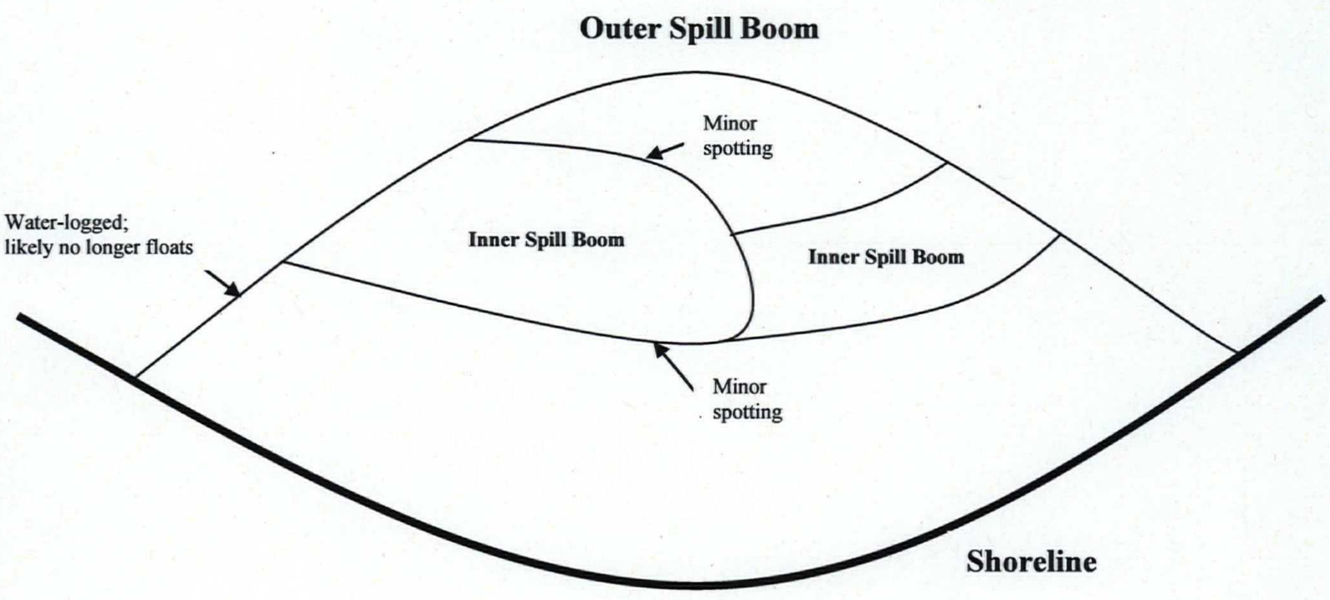
DATE: NOVEMBER 16, 2010	**PROJECT NO.** 080239	**WEATHER:** MOSTLY CLOUDY 40'S
PROJECT NAME: Former Bremerton M G P		**CLIENT:** CASCADE NATURAL GAS
EQUIPMENT USED: NONE		**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site shortly after low tide to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. A 2.3 low tide took place at 20:17 on Tuesday, November 16, 2010. Jeremy Shaha from Aspect arrived at the site at 21:30. Visibility was fair, with mostly cloudy skies and little wind.

Due to a higher low tide and a delay in arriving at the site, the outer spill boom was already afloat. The outer spill boom appeared to be floating properly, although it was not possible to determine if there was any product spotting on the spill boom. No visible sheen or free-product was observed on the water inside the outer spill boom or in the backfilled materials, and there was no detectable hydrocarbon odor. Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition and generally do not appear to be water-logged. However, the outer spill boom anchored to the western shoreline (see below diagram) appears to still be water-logged and may no longer effectively float. The spill booms are slightly, to moderately soiled in certain areas, but no significant product was present with the exception of previously detected minor spotting on the inner spill boom (see below diagram)

Aspect left the site at approximately 10:00.



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Page 1 of 1	**FIELD REP.:** Jeremy Shaha, LHG, Project Hydrogeologist

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Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DAILY REPORT

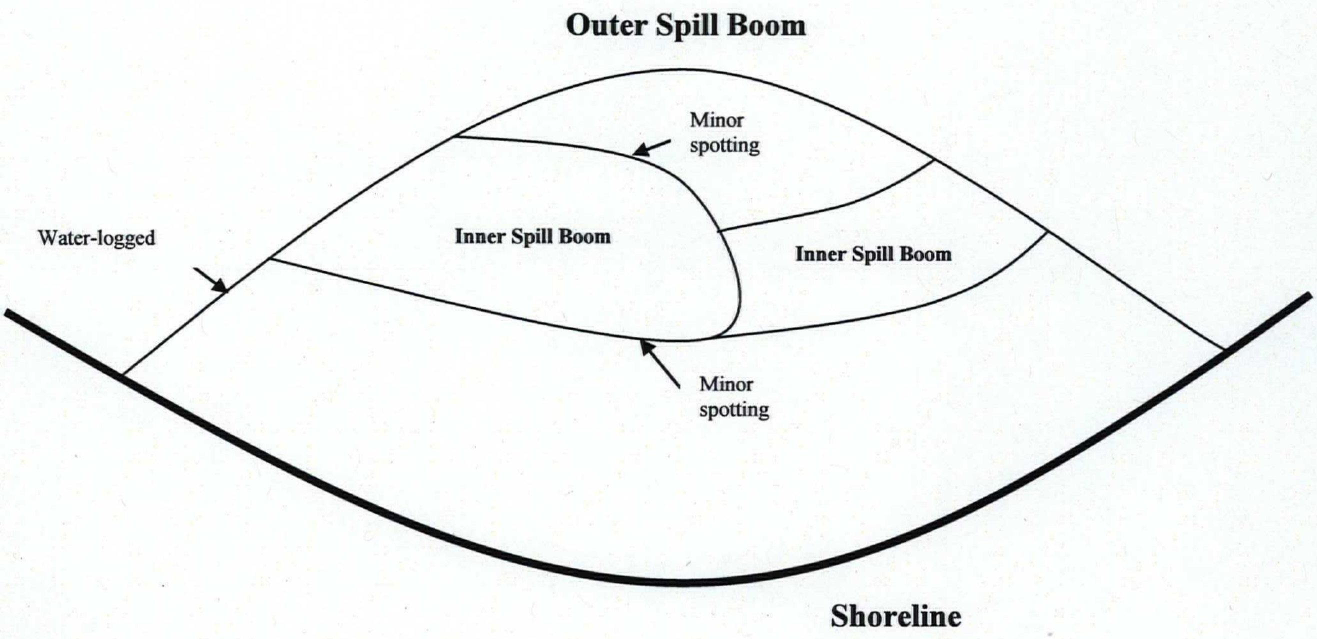
DATE: NOVEMBER 19, 2010	**PROJECT NO.** 080239	**WEATHER:** HEAVY RAIN WINDY 40'S
PROJECT NAME: Former Bremerton M G P	**CLIENT:** CASCADE NATURAL GAS	
EQUIPMENT USED: NONE	**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA	

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site shortly before low tide to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. Bob Hanford from Aspect arrived at the site at 21:00 Visibility was poor, with heavy rain and wind.

Due to a higher low tide the outer spill boom was partially afloat. The outer spill boom appeared to be floating properly, although it was not possible to determine if there was any product spotting on the spill boom. No visible sheen or free-product was observed on the water inside the outer spill boom or in the backfilled materials, and there was no detectable hydrocarbon odor. Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition and generally do not appear to be water-logged. However, the outer spill boom anchored to the western shoreline (see below diagram) appears to still be water-logged. Based on observations by the Aspect Consulting Project Manager on 11/19/2010 at 11:00, the water-logged section still floats. The spill booms are slightly, to moderately soiled in certain areas, but no significant product was present with the exception of previously detected minor spotting on the inner spill boom (see below diagram)

Aspect left the site at approximately 2130.



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Page 1 of 1	**FIELD REP.:** Bob Hanford, LHG, Senior Geologist

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Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

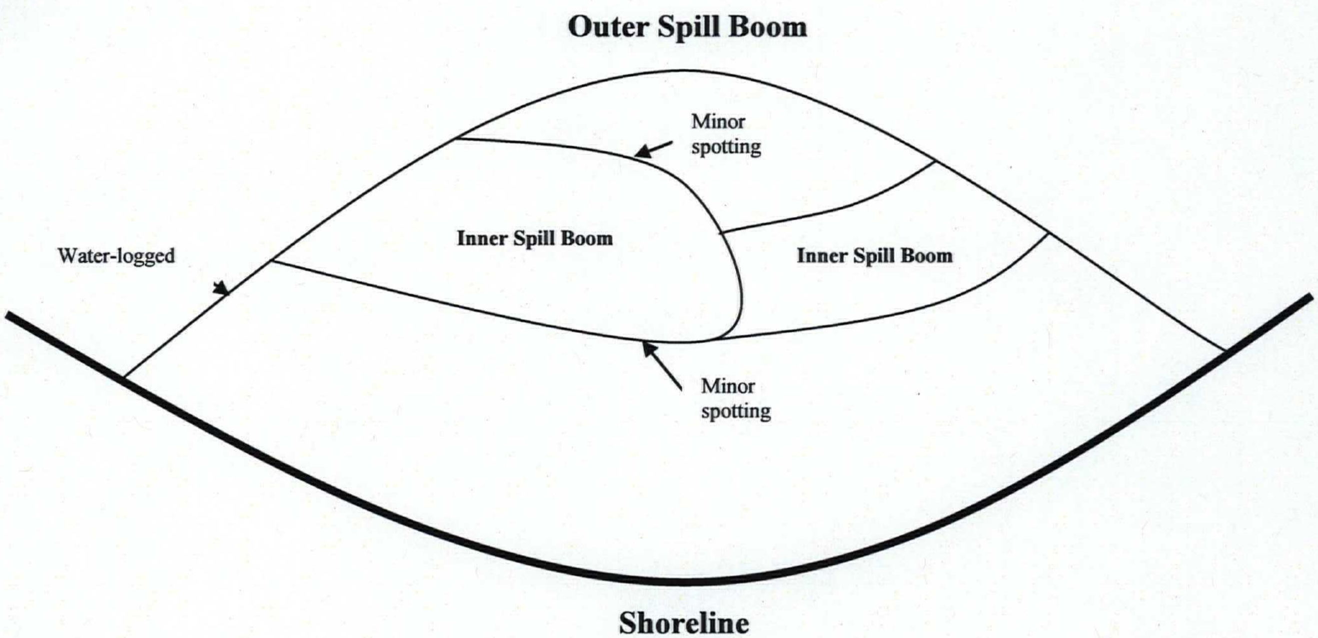
DAILY REPORT

DATE: NOVEMBER 27, 2010	**PROJECT NO.** 080239	**WEATHER:** OVERCAST HIGH 30'S
PROJECT NAME: Former Bremerton M G P		**CLIENT:** CASCADE NATURAL GAS
EQUIPMENT USED: NONE		**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site shortly before low tide to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. Bob Hanford from Aspect arrived at the site at 23:30.
The outer spill boom was partially afloat. The outer spill boom appeared to be floating properly and no sheen was observed. No visible sheen or free-product was observed on the water inside the outer spill boom or in the backfilled materials, and there was no detectable hydrocarbon odor. Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition and generally do not appear to be water-logged, except for the outer boom anchored to the western shoreline.

Aspect left the site at approximately 00:00.



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DAILY REPORT

179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370

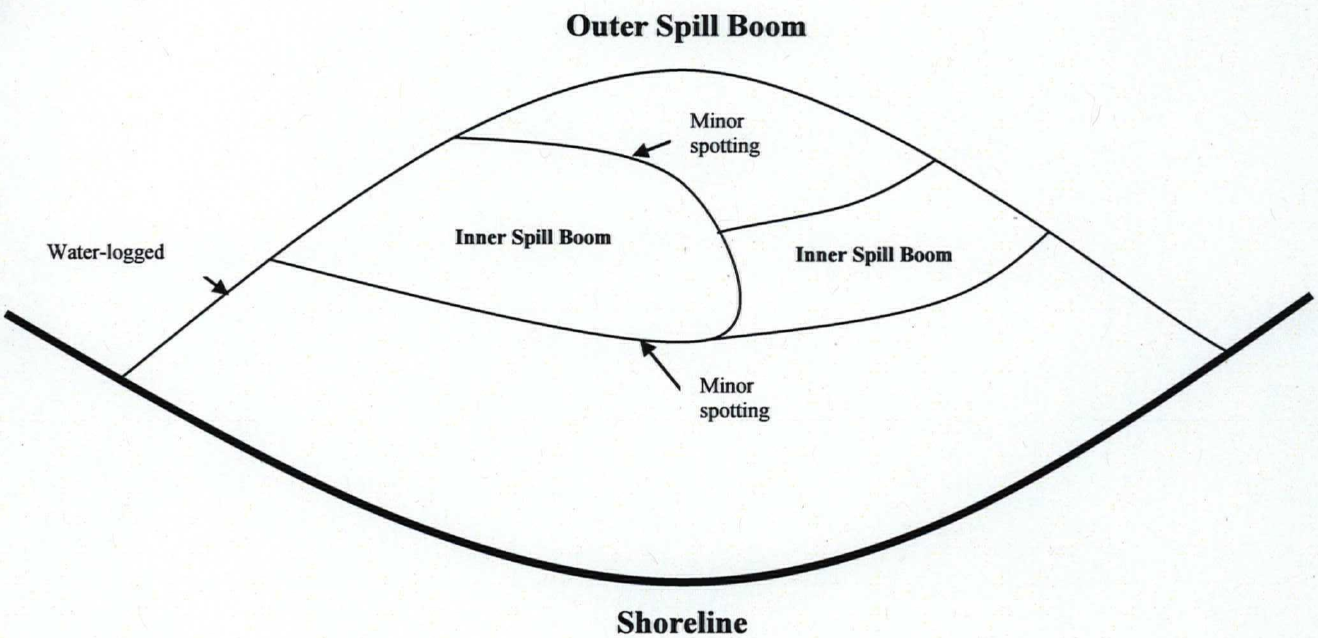
401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DATE: NOVEMBER 28, 2010	**PROJECT NO.** 080239	**WEATHER:** OVERCAST HIGH 30'S
PROJECT NAME: Former Bremerton M G P		**CLIENT:** CASCADE NATURAL GAS
EQUIPMENT USED: NONE		**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site shortly after low tide to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. Bob Hanford from Aspect arrived at the site at 0700.
The outer spill boom was partially afloat. The outer spill boom appeared to be floating properly and no sheen was observed. No visible sheen or free-product was observed on the water inside the outer spill boom or in the backfilled materials exposed on the beach and there was no detectable hydrocarbon odor. Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition and generally do not appear to be water-logged, except for the outer boom anchored to the western shoreline.

Aspect left the site at approximately 0730.



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Page 1 of 1	**FIELD REP.:** Bob Hanford, LHG, Senior Geologist

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Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DAILY REPORT

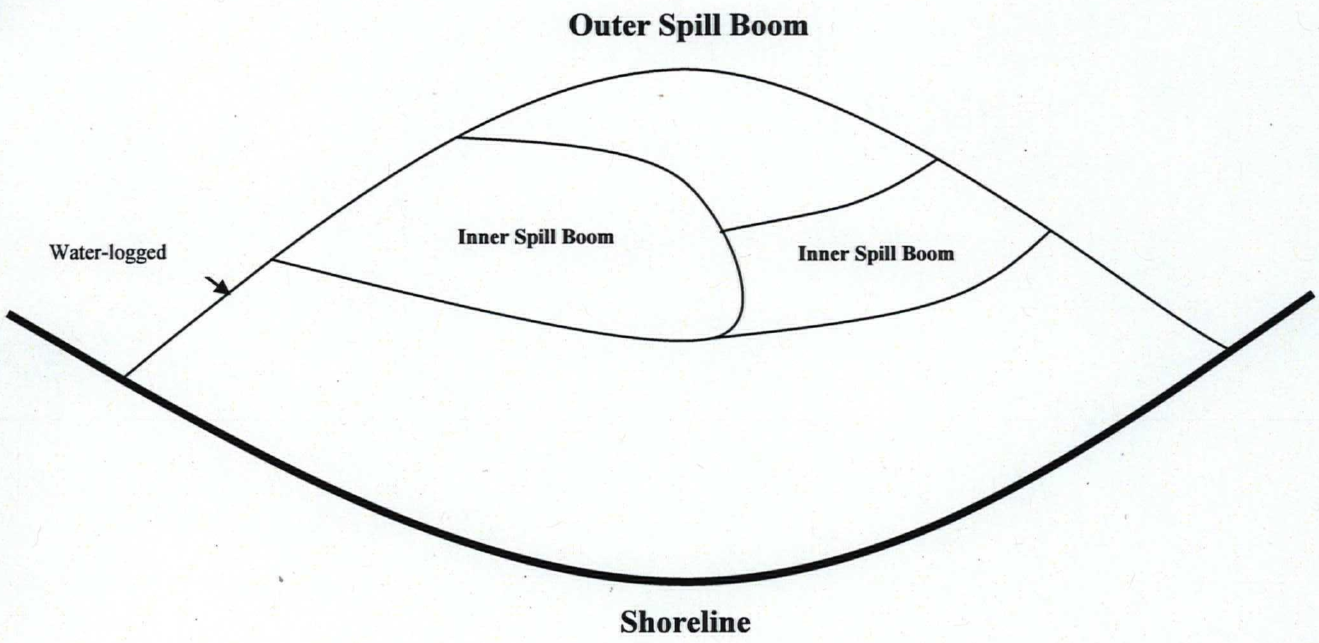
DATE: DECEMBER 1, 2010	**PROJECT NO.** 080239	**WEATHER:** OVERCAST 40'S
PROJECT NAME: Former Bremerton M G P	**CLIENT:** CASCADE NATURAL GAS	
EQUIPMENT USED: NONE	**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA	

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site shortly before low tide to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. Bob Hanford from Aspect arrived at the site at 0745.

The outer spill boom was partially afloat. The outer spill boom appeared to be floating properly and no sheen was observed. No visible sheen or free-product was observed on the water inside the outer spill boom or in the backfilled materials exposed on the beach and there was no detectable hydrocarbon odor. Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition and generally do not appear to be water-logged, except for the outer boom anchored to the western shoreline.

Aspect left the site at approximately 0830.



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Page 1 of 1	**FIELD REP.:** Bob Hanford, LHG, Senior Geologist

DAILY REPORT

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179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

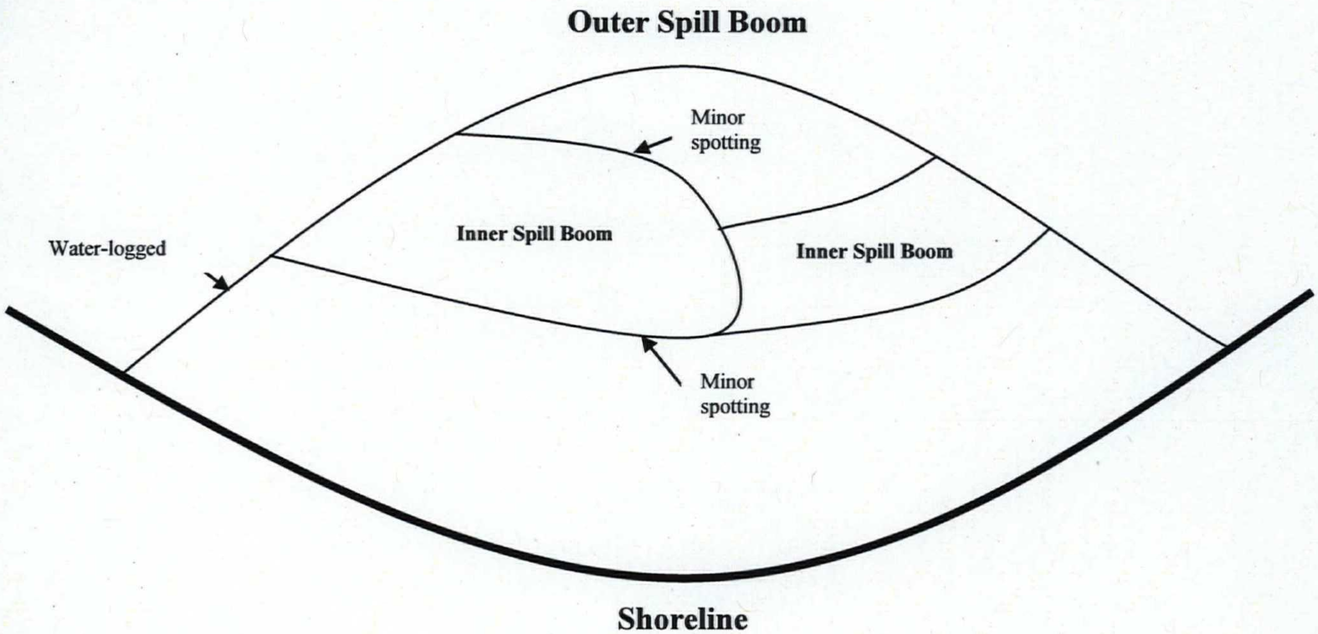
DATE: DECEMBER 4, 2010	**PROJECT NO.** 080239	**WEATHER:** OVERCAST 40'S
PROJECT NAME: Former Bremerton M G P		**CLIENT:** CASCADE NATURAL GAS
EQUIPMENT USED: NONE		**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. Bob Hanford from Aspect arrived at the site at 19:00.

The outer spill boom was partially afloat. The outer spill boom appeared to be floating properly and no sheen was observed. No visible sheen or free-product was observed on the water inside the outer spill boom or in the backfilled materials exposed on the beach and there was no detectable hydrocarbon odor. Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition and generally do not appear to be water-logged, except for the outer boom anchored to the western shoreline.

Aspect left the site at approximately 19:45.



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Page 1 of 1	**FIELD REP.:** Bob Hanford, LHG, Senior Geologist

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Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DATE: DECEMBER 7, 2010	**PROJECT NO.** 080239	**WEATHER:** HARD RAIN 40'S
PROJECT NAME: Former Bremerton M G P	**CLIENT:** CASCADE NATURAL GAS	
EQUIPMENT USED: NONE	**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA	

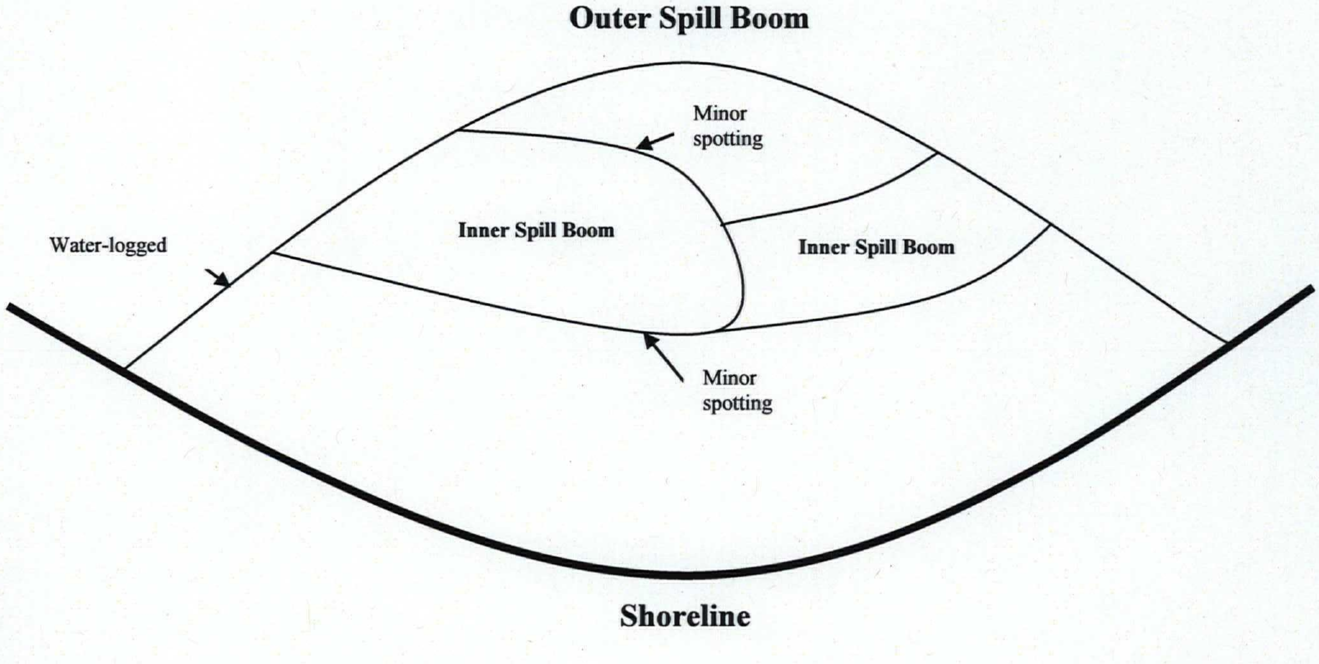
THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site to observe the condition of the spill containment equipment (spill booms) at the site, following the excavation of a drainage pipe and subsequent backfill. Bob Hanford from Aspect arrived at the site at 16:00

The tide was at approximately 10 foot level. The entire spill boom appeared to be floating properly and no sheen was observed and there was no detectable hydrocarbon odor. Both the outer and inner spill booms were observed to be intact and securely anchored/connected. The spill booms remain in fairly good condition and generally do not appear to be water-logged, except for the outer boom anchored to the western shoreline.

Aspect representative used a Trimble differentially corrected gps to record locations of the former storm drain located on the former gas works property as well as all observed storm drains on all three properties. A product line running from the former ARCO site had been located by other and was also recorded using the gps unit.

Aspect left the site at approximately 17:30.



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179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DATE: DECEMBER 21, 2010	**PROJECT NO.** 080239	**WEATHER:** SCATTERED RAIN 40'S
PROJECT NAME: Former Bremerton M G P	**CLIENT:** CASCADE NATURAL GAS	
EQUIPMENT USED: NONE	**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA	

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site to observe the condition of the spill area following the excavation of the drainage pipe and subsequent backfill. All spill containment equipment had been removed prior to the site visit. Jeremy Shaha from Aspect arrived at the site at 18:30.

There was an 11.7 high tide at approximately 16:00, so the site was accessed from the bluff above. Due to the high tide, it was not possible to inspect the ground of the spill area; however, there was no visible sheen on the surface of the water and no detectable hydrocarbon odor.

Aspect left the site at approximately 19:00.

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Page 1 of 1	**FIELD REP.:** Bob Hanford, LHG, Senior Geologist

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Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DAILY REPORT

DATE: JANUARY 2, 2010	**PROJECT NO.** 080239	**WEATHER:** CLEAR, 32F
PROJECT NAME: Former Bremerton M G P	**CLIENT:** CASCADE NATURAL GAS	
EQUIPMENT USED: CAMERA, FLASHLIGHT	**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA	

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site to observe the condition of the beach area following the excavation of the drainage pipe, subsequent backfill, and placement of an organoclay mat and beach rock cover. Jeremy Porter from Aspect arrived at the site at 20:40 and accessed the beach from the bluff at the north end of Pennsylvania Avenue.

There was an -1.9' low tide predicted at approximately 21:50. During the site visit, the tide had receded past the northern edge of the backfilled area, with approximately 8 feet between the edge of the rock cover and the water. The City sewer outfall was located above the waterline. No flow from the City outfall was observed. Pictures provided below.

Aspect inspected the rock cover, including above the former pipe location, and the sediments surrounding the rock cover. No sheen, odor, or other evidence of oil contamination was observed.

Aspect left the site at approximately 21:05.


Beach north of rock cover – looking east


City sewer outfall – looking west

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Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DATE: JANUARY 6, 2011	**PROJECT NO.** 080239	**WEATHER:** LIGHT RAIN 40'S
PROJECT NAME: Former Bremerton M G P		**CLIENT:** CASCADE NATURAL GAS
EQUIPMENT USED: NONE		**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site to observe the condition of the spill area following the excavation of the drainage pipe and subsequent backfill. All spill containment equipment has previously been removed. Jeremy Shaha from Aspect arrived at the site at 17:00.

There was a 6.1 low tide at approximately 13:30 and a 10.5 high tide at approximately 18:00, so the site was accessed from the bluff above. Due to the high tide, it was not possible to inspect the ground of the spill area; however, there was no visible sheen on the surface of the water and no detectable hydrocarbon odor.

Aspect left the site at approximately 17:30.

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Page 1 of 1	**FIELD REP.:** Jeremy Shaha, LHG, Project Hydrogeologist

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DAILY REPORT

179 Madrone Lane North
Bainbridge Island, Washington 98110
(206) 780-9370

401 Second Avenue S, Suite 201
Seattle, Washington 98104
(206) 328-7443

DATE: JANUARY 14, 2011	**PROJECT NO.** 080239	**WEATHER:** WINDY, 40'S
PROJECT NAME: Former Bremerton M G P	**CLIENT:** CASCADE NATURAL GAS	
EQUIPMENT USED: TRIMBLE GPS	**PROJECT LOCATION:** DYES INLET, WEST BREMERTON, WA	

THE FOLLOWING WAS NOTED:

Aspect Consulting LLC (Aspect) was on site to observe the condition of the spill area following the excavation of the drainage pipe and subsequent backfill. All spill containment equipment has previously been removed. Bob Hanford arrived at the site at 16:00.

There was a 4.1 low tide at the approximately time of the site visit. About half of the area encompassed in the previously excavated area was exposed. No sheen or odor was observed on the exposed cobble surface or in the tidal zone.

Aspect used a Trimble GPS unit to survey existing monitoring wells, storm line manholes, and sewer manholes.

Aspect left the site at approximately 18:00

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Page 1 of 1	**FIELD REP.:** Bob Hanford, LHG Senior Geologist

Appendix M

APPENDIX M
U.S. COAST GUARD MEMORANDUM TRANSFERRING LEAD ROLE TO U.S. ENVIRONMENTAL PROTECTION AGENCY

U.S. Department of
Homeland Security

United States
Coast Guard

Commander
United States Coast Guard
Sector Puget Sound

1519 Alaskan Way South, Bldg 4
Seattle, WA 98134-1192
Staff Symbol: s
Phone: (206) 217-6002
Fax: (206) 217-6178

16465
12 Nov 2010

MEMORANDUM

From: S. Ferguson
Sector Puget Sound (s)

Reply to
Attn of:

To: K. Parker, OSC
U.S. EPA

Subj: COMPLETION OF TIME CRITICAL RESPONSE TO BREMERTON MGP WASTE RELEASE

1. In accordance with our approved Incident Action Plan, this memo marks the completion of the time critical response phase led by the U.S. Coast Guard Federal On Scene Coordinator. As previously agreed upon with the time critical response completion, oversight of this area now returns to U.S. EPA lead as the Federal On Scene Coordinator for site remediation.

2. My staff will continue to monitor this site periodically for changes and will provide assistance in a support role upon request unless conditions change warranting another time critical response to protect the marine habitat or human health and safety.

#

Copy: Washington Department of Ecology
CGD THIRTEEN (drm)
U.S. EPA
Kitsap County Department of Public Health